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# INTERMODAL TRANSPORTATION SAFETY

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4. P 96/11:103-45

(103-45)

Intermodal Transportation Safety, (...)

## HEARINGS

BEFORE THE

### SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT OF THE

### COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRD CONGRESS  
SECOND SESSION

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FEBRUARY 10 AND MARCH 2, 1994

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Printed for the use of the  
Committee on Public Works and Transportation



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# INTERMODAL TRANSPORTATION SAFETY

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THURSDAY, FEBRUARY 10, 1994

HOUSE OF REPRESENTATIVES,  
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION,  
SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT,  
*Washington, DC.*

The subcommittee met, pursuant to notice, at 9:39 a.m. in room 2167, Rayburn House Office Building, Hon. Robert Borski (chairman of the subcommittee) presiding.

Mr. BORSKI. The subcommittee hearing will come to order.

The subcommittee today will examine how the Department of Transportation makes its very crucial and very important decisions on safety enforcement. This issue touches the life of everyone in our Nation—everyone who uses the roads, the rails, the skies, or the waterways. There is no issue that is of more importance to every one of us than making sure that our entire transportation system is safe. With lives at risk, there is no room for mistakes.

Our concern today is to find out how the decisions are made—the determinations of what resources to allocate to safety enforcement in different modes, the financing, the personnel, and the priorities.

We also want to hear about the coordination between the modes to ensure the overall safety of the transportation system. How do the different modal administrators communicate and coordinate to prevent the kind of gaps that must occur regularly?

Varying and sometimes conflicting regulations are also a major concern for us. How are the decisions made that result in different standards in the same areas applying to different modes? Is there an overall strategy to make sure that the different modal administrations work together and provide an equal level of safety in all modes?

Finally, there are questions about the data that are collected. Does the Department of Transportation have all the information it needs to make these vital decisions? Has the new Bureau of Transportation Statistics that was created by ISTEA developed the proper method to collect data that will allow comparisons to be made about the safety of one mode compared to another?

Tens of thousands of Americans died in transportation-related accidents in the last year alone. Thousands upon thousands more were injured. The question is, are we doing all we can to prevent those accidents and to prevent those deaths and injuries?

We are especially pleased to welcome Secretary of Transportation Federico Peña to our hearing. During his first year in office, he has demonstrated his tremendous concern about safety issues and has

become the Nation's leading safety advocate. Secretary Peña has clearly pointed the Department of Transportation in the direction of making safety enforcement the top priority, and he is to be commended for it.

I now want to recognize the distinguished ranking Member, the gentleman from Oklahoma, Mr. Inhofe.

Mr. INHOFE. Thank you, Mr. Chairman.

I also want to welcome our Secretary of Transportation. He and I know what a real tough job is, because when he was mayor of Denver, I was mayor of Tulsa, Oklahoma, and we served together on several boards, and a lot of people don't appreciate the difficulty in being the mayor of a major city as we do. We're going to enjoy working with you.

As a pilot and a frequent user of our national airspace system, I can testify that the safety level of our airspace in the United States is far superior to any place in the world. Two years ago, I had the occasion to fly a small airplane around the world replicating the flight of Wiley Post, and I can remember as we crossed over into Western Europe and then across to Eastern Europe and into the Soviet Union, several times with bad weather, zero-zero weather, finding that there were no communications, and this is something that I didn't realize there was a situation like this, and it's quite frightening. I'm used to flying in zero-zero weather, but we always have good communications, and I think we're spoiled in this country, because that's become a norm as opposed to an exception.

Accordingly, I seriously question the superior level of reliability that we all depend on and expect to be maintained in an air traffic control system that is independent of the FAA. I hope the Secretary will address this in his comments.

On a related note, I want to raise a safety issue regarding drug interdiction activities in South Florida. It's been alleged that law enforcement officials involved in undercover operations have knowingly permitted illegal alterations to aircraft, such as the switching of data plates and installation of non-standard parts and equipment, without making the required notations in the aircraft's maintenance log. Furthermore, these altered aircraft may have been reintroduced into the general aviation population once the undercover operations were completed.

If true, the consequences are serious. Just as pilots rely on the air traffic control system for accurate navigation, they rely on maintenance logs and data plates to judge the condition and airworthiness of aircraft.

I'm particularly sensitive to this in that some of the purchasers were from my hometown of Tulsa, Oklahoma, only to find that they were flying aircraft with run-out engines, and they were represented to be new engines. So it's a very serious thing.

I want to thank the Chairman for his cooperation on this issue and his willingness to devote subcommittee resources to investigate these charges. It is my intention to request a hearing to further explore the situation once the preliminary investigation by the staff is complete.

Mr. Chairman, as always, I welcome the opportunity to hear from our witnesses and look forward to our hearing.

Mr. BORSKI. The Chair thanks the gentleman.

The gentlewoman from Virginia, Ms. Byrne?

Ms. BYRNE. I look forward to hearing what the Secretary has to say right now. Thank you.

Mr. BORSKI. The Chair thanks the gentlewoman.

The gentleman from California?

Mr. BAKER. Welcome, Secretary Peña. On behalf of Buck McKeon, who is on the committee but not on this subcommittee, I just want to thank you for all the fast action you've taken in Los Angeles after the earthquake. Caltrans and private contractors were there the next day working 24 hours a day. Within a week, all of the freeway rubble that we all saw on television back here was gone, and plans were being drafted to reproduce those structures.

Those freeway structures that were retrofitted, that we looked at the safety of, survived the quake, and those aging structures did not. Of course, they all have their timetable, limited on budget, as to when we can retrofit. And, as you know, the Cypress Freeway from the 1987 disaster is still laying there, and due to political inaction, we're trying to find the proper spot. But eventually we're going to have to build and retrofit some of those freeways, too.

I've introduced a bill to take the 2.5 cents out of the budget agreement of 1990 that came from the gas tax and will return to the transportation funds in 1995 and put them in the transportation funds now so that we can go ahead, while we're reconstructing down in Los Angeles, and retrofit those other aging freeways.

We've had two miracles in California recently. One was when we had a World Series game and no one was on the freeways, so the Cypress collapsed, and I think we had 67 lives lost in all. On a normal day, there would have been 650 people under that freeway. This last one occurred at 4:30 in the morning, not 6:30 or 7:00 in the morning. The difference of those two hours is hundreds and hundreds of lives.

My bill also takes the 1993 budget agreement 4.3-cent gas tax, which will come to us in 1998, and moves it to us, giving us a total of \$7 billion to spend immediately retrofitting those freeways and to make available for other disaster areas, like hurricanes, floods in the Midwest.

I hope you'll stand up for that in cabinet meetings. I know the pressure on budgets and the pressure for balancing the budget and for spending our money wisely, but I contend that if we put that money out into State-approved—not pork projects, but State-approved projects to retrofit, we'll not only save lives, but we'll put people to work and return money to the Federal Government.

So while that 6.8 cents has disappeared somewhere, it could be spent today, and we're going to be doing much of the building anyway. We're going to be replacing those freeways, and the President has promised at least 90 percent, if not 100 percent, in payments. So it's going to come out anyway. We might as well identify gas tax with road projects and go ahead and retrofit those other aging freeways at the same time. California's economy wouldn't be hurt by this, and it's been stolen from the motorists. They think it's going to go to transportation, and instead it disappears in Washington.

So I think we have good case to make, and I hope you'll, in cabinet meetings, stand up to spend that money at least as long as the

emergency lasts. Because every six years we're going to have an earthquake, like it or not, Florida's going to have a hurricane, and we're going to need that money to be set aside from gas tax revenue, not general fund.

Thank you very much.

Mr. BORSKI. The Chair thanks the gentleman.

If I may, I would now like to recognize the distinguished ranking Member, the gentleman from Pennsylvania, Mr. Shuster.

Mr. SHUSTER. Thank you very much, Mr. Chairman.

Mr. Secretary, I simply want to commend you for the absolutely outstanding job you're doing, not only the way you grabbed hold of the disaster in California, but the way you're moving with the Department. I know you were up here several times last week meeting with the leadership of this committee, and I think we have a good bipartisan partnership, and I salute you for that.

Thank you, Mr. Chairman.

Mr. BORSKI. The Chair thanks the gentleman.

The gentleman from Illinois, Mr. Poshard?

Mr. POSHARD. Thank you, Mr. Chairman.

Mr. Secretary, I also wish to commend you on the good job that you're doing and welcome you to the committee. I know you're running very short on time. I have a list of questions that I would like to give the Department with respect to marine safety. I represented, until this last year, long stretches of the Mississippi River and now the Ohio River, and I've got some particular concerns about marine safety as well as pipeline safety across our district and across the country, and I will submit those to you in writing. Thank you, sir.

Mr. BORSKI. The Chair thanks the gentleman.

The gentleman from Tennessee?

Mr. DUNCAN. No questions, Mr. Chairman.

Mr. BORSKI. The gentleman from Wisconsin, Mr. Barca?

Mr. BARCA. I know you're on a short time line also. I'd like to also thank you and welcome you to the committee, and being from Wisconsin, I also wanted to just thank you for your very prompt attention to a problem not as great as the L.A. tragedy, but on our Rose Bowl ticket problem, dealing with the ticket scams that occurred across the State. So thank you very much.

Mr. BORSKI. The Chair thanks the gentleman. Before we begin with Secretary Peña, I would like to enter Mr. Blackwell of Pennsylvania's statement into the record.

[Mr. Blackwell's prepared statement follows:]

STATEMENT OF HON. LUCIEN E. BLACKWELL BEFORE SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT HEARING ON INTERMODAL TRANSPORTATION SAFETY ISSUES

Mr. Chairman, it is a pleasure to join with you here today to discuss the urgent issue of safety in transportation, and the reasons why certain variations exist between the various modes of transportation.

I would also like to take this opportunity to welcome our distinguished panelists, including one of the Administration's true stars, transportation Secretary Peña.

Mr. Chairman, Americans spend nearly \$800 billion for transportation products and services annually. Transportation and transportation related businesses employ one-tenth of our nation's work force.

As a share of consumer spending, transportation accounts for more than 20 percent of the total.

For this reason, Mr. Chairman, the time has come to address the fundamental concern of the true customers who rely on our nation's vast transportation systems and markets each and every day.

The true customers, Mr. Chairman, are the American people, and their fundamental concern, is safety.

We all know that automobile accidents are responsible for the overwhelming majority of transportation fatalities in the United States each year.

In 1990, 47,269 Americans lost their lives as a result of transportation accidents.

While more than 44,500 of these occurred on our nation's highways, nearly two thousand people were killed in plane and marine vessel accidents.

If the loss of a single life can be averted due to the implementation of a more effective and comprehensive National Transportation Safety program, than our efforts during these hearings will not be in vain.

It is clear Mr. Chairman, that certain variations exist between the various modes of transportation for practical reasons.

It appears however, that there are several key discrepancies that exist, merely because they are ingrained in the bureaucracy. This is simply intolerable.

We need to draw upon the expertise of the various agencies to formulate key policies which will dramatically increase safety for every mode of transportation.

Practices which may be in place with the FAA for example, might also be effective for the Coast Guard.

By putting ideas together, we can change our way of thinking about safety issues, and become more proactive in our approaches.

For all too often Mr. Chairman, we fail to address some of our most serious flaws, until after a disastrous accident occurs.

I am extremely pleased that we have Secretary Peña with us here today to discuss the role of the Office of the Secretary in the formulation and administration of safety policies. I have read through the Secretary's testimony, and I believe that he has some truly innovative ideas which could revolutionize the way that safety issues are handled by the federal government.

The American people have watched helplessly as a series of high profile transportation-related accidents have devastated our nation over the course of the last few years.

From the infamous grounding of the Exxon Valdez which violated the pristine environment of Alaska's Prince William Sound, to last September's Amtrak accident near Mobile, Alabama, a growing feeling of insecurity and rage are emerging as the federal government has failed to properly address the myriad questions which are usually posed after these horrifying incidents.

In what areas does the potential for real improvement in transportation exist?

Better management and utilization of our records and statistics?

Perhaps increased reliance on new technology which clearly has the ability to act effectively in a more proactive and thorough manner?

New standard-setting programs which reach across agency boundaries, to achieve real success in safety strategy?

It is my firm belief that throughout the course of these hearings, we will receive the answers to these questions.

Furthermore, we will create a plan of action for the Department of Transportation to follow, for the implementation of such programs.

It is my firm belief that we can achieve more in the area of safety without necessarily spending new money.

In many cases, I believe that we will find that our resources already exist, and that by improving lines of communication between the various agencies within the Department of Transportation, we can attain a remarkable level of success.

I commend you, Mr. Chairman on bringing this urgent topic to the forefront of the Subcommittee's agenda, and I look forward to working with you and the other members of the subcommittee, to bring the promise of transportation safety to the American people.

Thank you, Mr. Chairman.

Mr. BORSKI. We would now like to welcome our first witness this morning, the Honorable Federico Peña, Secretary, U.S. Department of Transportation.

Mr. Secretary.

## TESTIMONY OF HON. FEDERICO PEÑA, SECRETARY OF TRANSPORTATION, U.S. DEPARTMENT OF TRANSPORTATION

Mr. PEÑA. Thank you very much, Mr. Chairman, and good morning, Members. Let me first tell all of you how delighted I am to be here this morning and to commend you, Mr. Chairman, and the Members of the subcommittee for focusing your time and energy on this very important subject.

I thank you for conducting this hearing, because in preparing for today's testimony—and, interestingly, we made the preparation in consultation with all of our modal administrators—it inspired us and in a sense focused our attention on this very question, and that fact alone I think has helped us come up with more creative ideas and approaches in resolving the issues that you have before you in this hearing.

So I thank you for that, Mr. Chairman. I do have a written statement which I would like to submit for the record summarizing other matters and other questions, but let me share with you very briefly some opening comments, and I also have some charts with me this morning which I think might be helpful.

The safety action plan that the Department has put together is founded on the belief that the American people, as many of you stated this morning, are entitled to a safe and secure transportation system. Our agenda has four parts to it: number one, making safe transportation one of the Department's highest strategic goals, and in the last several months, we issued seven strategic goals for the Department of Transportation, and, of course, safety and security is high in those goals; secondly, maximizing our cross-modal management of these safety issues; thirdly, harnessing new technologies to help us address today's and tomorrow's safety challenges; and, fourthly, improving the availability and the use of safety-related information.

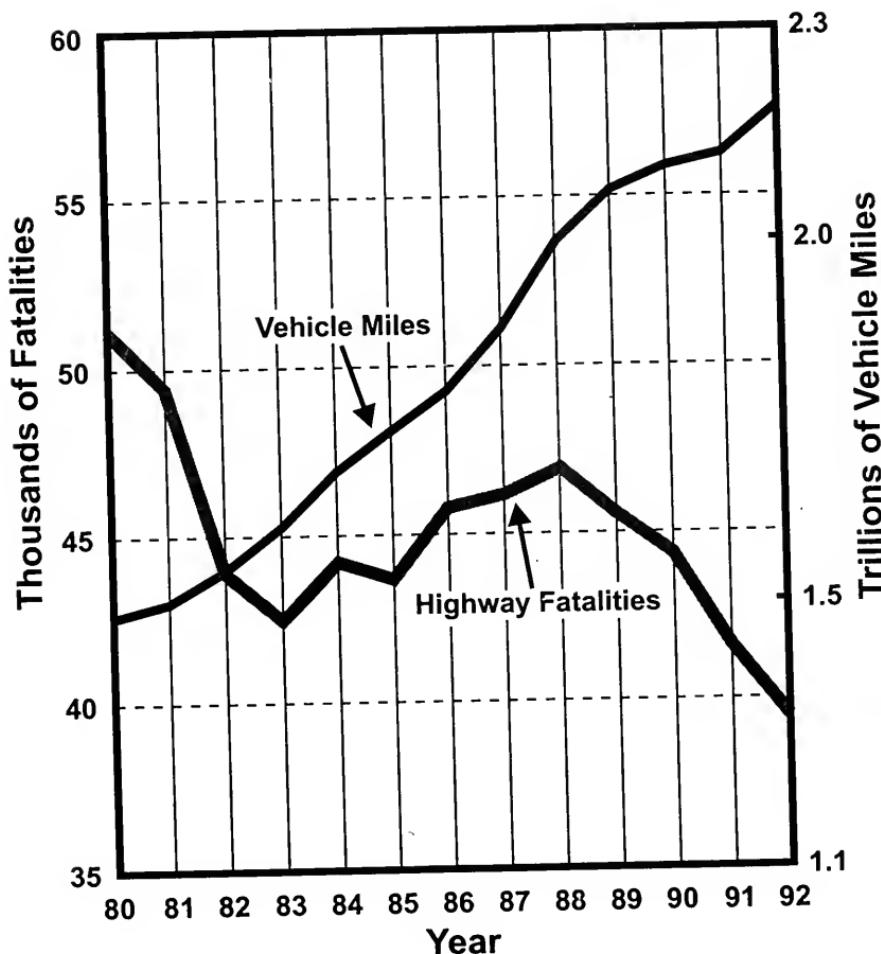
Before I discuss these points, let me acknowledge that the efforts of everyone involved with safety and the Nation's transportation system, from the Congress to each of you to the Department to State and local governments and also local organizations, have all paid substantial dividends in saving lives and avoiding injuries.

Statistics are one way to tell the story of our success. Since 1980, overall transportation fatalities have decreased by about a quarter, while transportation activity has increased by over a third. Most of this dramatic achievement has been in the highway area, where fatalities have dropped from 51,091 in 1980 to 39,235 in 1992.

I have with me this morning a chart, which indicates this movement. We have the highway fatalities, which are indicated in the red line, and you see how they have come down very dramatically since 1980, just a little over 39,000 in 1992, and it's more impressive when you look at the highway activity, which has increased by 32 percent, from 1.5 trillion vehicle miles traveled in 1980 to 2.2 trillion vehicle miles traveled in 1992. So that's significant progress.

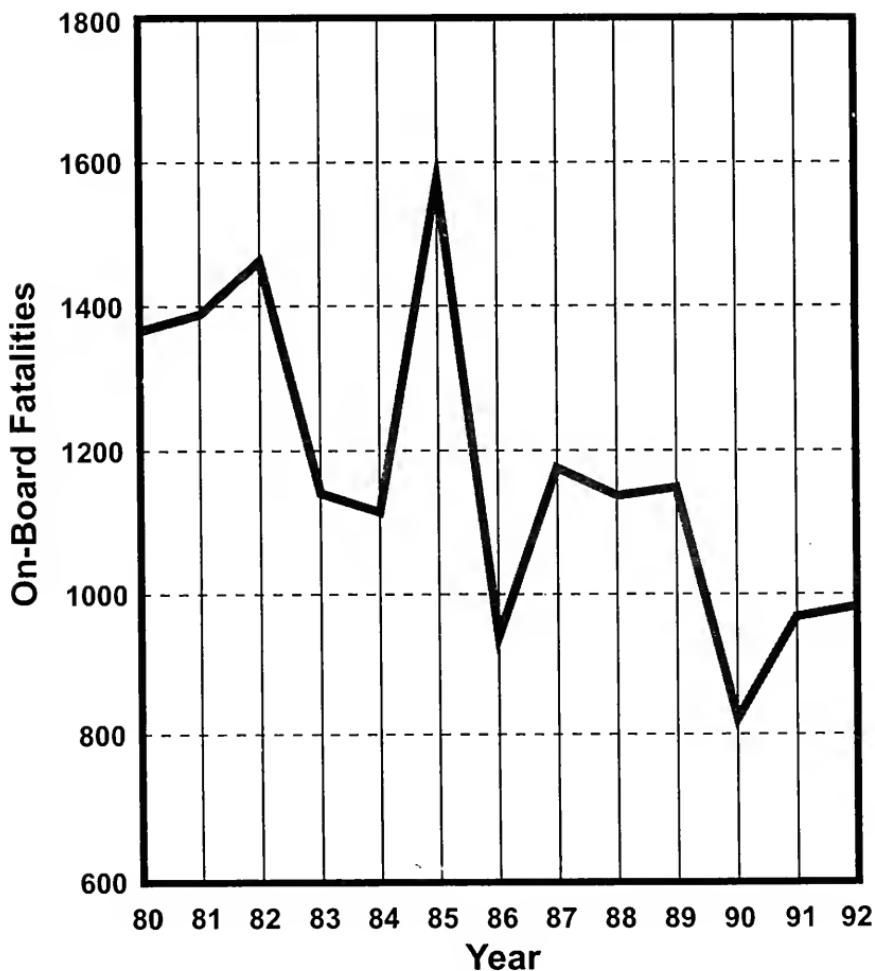
Chart 1

## Highway Fatalities and Vehicle Miles Traveled United States Experience 1980-1992



Mr. PEÑA. The improvement in aviation has been equally as strong. System fatalities have fallen from 1,382 in 1980 to 782 in 1993, with no fatalities last year involving passenger flights on major U.S. air carriers. *Chart No. 2* depicts this improvement in the area of safety in aviation, indicating the decline in on-board fatalities from 1,368 down to 979. Again, we want to make more progress here, but that's a significant improvement.

## **U.S. Civil Aviation Fatalities On-Board Fatalities (1980-1992)**



Mr. PEÑA. In effect, America already has the safest transportation system in the world, but I know, Mr. Chairman, and I've heard this morning from each of the Members that we must do more, because any death we have in our transportation system is one too many.

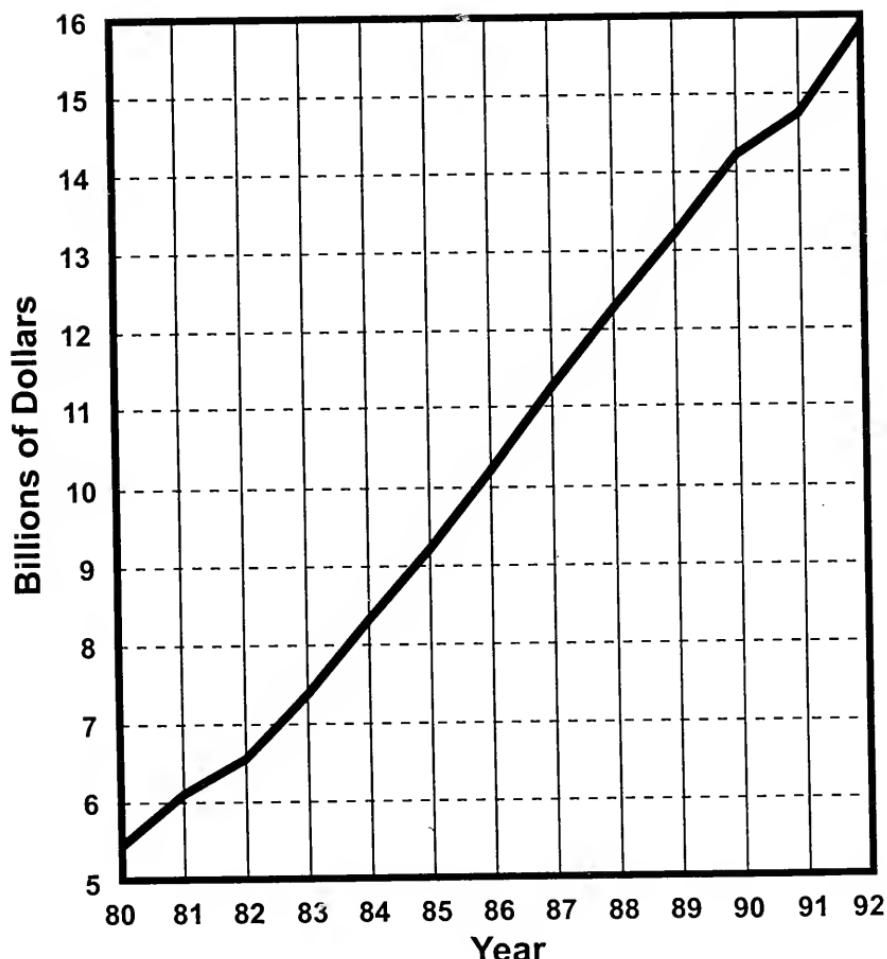
Let me go through the four points of our strategic plan. First, as respects the Department's strategic plan which I announced last month, one of our highest priorities is promoting safe and secure transportation systems. Simply put, my objective is to significantly reduce death and injury and eliminate needless pain and suffering of victims and their families.

The fiscal year 1995 budget request includes \$1.9 billion in direct safety programs. It includes full funding of the Motor Carrier Safety Grant Program at \$83 million, a 28 percent increase, and increases for other items, such as State grants for pipeline safety and raising the number of railroad inspectors.

This improvement in safety will also reduce the burden of transportation accidents on our health care system. The cost of motor vehicle crash injuries in 1990 was estimated at \$137 billion. Of that, \$14.4 billion went for health care expenditures, about \$4 billion of which represents costs in Medicare and Medicaid paid by our tax dollars. Our safety programs are an important component of the President's National Health Care Initiative.

In spite of the significant reduction in the number of our fatalities and injuries over the years, health care costs associated with these accidents have still risen very dramatically, and let me indicate that by having you look at Chart No. 3 here.

## **Estimated Trend in Medical Care Costs for Motor Vehicle Crashes**



Mr. PEÑA. This is a calculation of the health care costs, which have, as you can see, skyrocketed at the same time that we have actually brought down the number of deaths and injuries on our transportation system. It indicates, if you look at that green line, that health care costs increased from \$5.4 billion in 1980 to \$15.9 billion in 1992. So we can help make a significant contribution to the health care crisis in our country right here by focusing on safety and responsibility and making improvements in our transportation system.

The second part of our four-point action plan is to maximize our cross-modal management of safety issues. The Department is organized, as you know, by statute and by delegation to fulfill its safety mandate primarily through the operating administrators. However, in my brief service as Secretary of Transportation, I have seen innumerable opportunities for cross-fertilization and joint approaches to safety problems. I want these cross-modal approaches expanded at every opportunity.

Mention was made of the Los Angeles earthquake, and that provides us with a very good example of how we did that. That earthquake occurred at 4:31 in the morning, and I believe I was the first member of the Administration to be in Los Angeles that afternoon, but I brought with me my chief of staff, the head of the FAA, the head of the Federal Highways, and the next day we had Gordon Liton, the head of the FTA, out there immediately.

By having all of the modal administrators present during that crisis, we were able to think and act creatively and in a supportive capacity to respond to all of the transportation sectors that were disrupted by the earthquake. We were able to move very quickly on the disparate safety transportation problems and provide any authority for reasonable waiver requests which were needed for California officials to resume operations quickly.

That is why on Monday afternoon Caltrans was able to get those contractors out there quickly, because we approved those emergency contracts—and you're absolutely correct about the elimination of the debris by Friday afternoon of that same week—so a Federal, State, and local transportation task force was established the next morning at 9:00 in the morning to oversee removal of the debris and to seek innovative solutions for dealing with the anticipated commute problems, which were very significant in the remaining days.

Federal highway engineers assisted Caltrans in determining the safety of the bridges, and the Federal Railroad Administration and Amtrak helped in expansion of the MetroLink Commuter Rail Service, working to ensure safety of the tracks and granting the waivers necessary to bring in new equipment from Canada and other sources.

On that point, Mr. Chairman, let me reflect on an interesting by-product of the earthquake. Prior to the earthquake, ridership on the MetroLink system in the Los Angeles area was a little over 1,000. Within seven days, it was up to about 30,000 people. Cities like Palmdale built temporary stations in three days to accommodate their passengers, and it indicated why this multi-modal approach to transportation is so critical to places like Los Angeles.

The Federal Transit Administration also oversaw safety checks on other elements of Los Angeles' extensive transit routes. For example, there was a question raised about the viability of the tunnels built for the subway system. Interestingly, while the earthquake was occurring, there were actually inspectors looking at the tunnel, and the tunnel held up, and so we're very pleased that we have not experienced any problems there.

The Research and Special Programs Administration, RSPA, helped municipalities deal with their ruptured gas lines and worked with the fire marshal's office to determine when the pipelines could be turned on again. I cannot praise enough, Mr. Chairman, the outstanding achievements of this cross-modal Federal, State, and local team effort that responded very quickly to the Los Angeles earthquake.

Another example of the need for a cross-modal approach to safety is found in highway railroad grade crossings. In 1992, 579 people lost their lives in highway rail crashes, and nearly 2,000 people were injured. Highway rail crossing accidents are the leading cause of fatalities in the entire railroad industry. This is especially disturbing because these collisions, usually due to carelessness, are in fact preventable.

To develop new insight into this problem, we have organized an intra-departmental task force to develop new strategies to reduce crashes at highway rail crossings. Federal Highways and FRA have the primary role, drawing heavily on NHTSA and FTA, and they will complete their work in March. It will include strategies for engineering improvements, public awareness, and law enforcement. One potential recommendation may be to upgrade or to eliminate all crossings where principal railroad lines intersect with the proposed National Highway System.

There are numerous other instances of the Department's cross-modal team approach to improving safety. Probably the most significant involves the handling of hazardous materials. Few people realize that more than 500,000 shipments of hazardous materials move on all modes through our transportation system each day. The Department of Transportation conducts compliance and enforcement programs and develops national standards and criteria to protect the public during these movements of hazardous materials.

The final rules implemented in the Omnibus Transportation Employee Testing Act epitomize the cross-modal approach. Seven million transportation workers in safety-sensitive jobs are now covered by alcohol testing rules for the first time in our country. We announced these rules last week, concluding a project that was very much a team effort.

Mr. Chairman, let me just indicate to you, I think I spent about 100 hours of my personal time in reviewing those rules, which are very complicated. But senior representatives from my office worked in concert with each of the modal administrators to craft rules that were evenhanded, that enhance safety, and that try to bring a common-sense approach across all the modes.

This brings me to my third point in my four-prong approach to safety, and that is harnessing the potential of new technologies. The abundance of technological innovation in this country not only

makes a major contribution to America's economy and global competitiveness, but it is also fundamental to advances in safety. New safety devices run the gamut from new security devices at airports and new ways to detect structural fatigue on aircraft to new methods of making bridge structures more earthquake-resistant.

In the latter case, for example, we are investigating the use of fiber composite materials for possible use in wrapping reinforced concrete bridge piers in an effort to make them more resistant to earthquake. I think it is a very exciting opportunity for us in the use of those materials in a creative way.

The potential for technological breakthroughs to solve safety problems is enormous. The Volpe National Transportation System Center performs some of this research and makes the technology developed for each mode available to other modes. Again, our fiscal year 1995 budget features a 14 percent increase in research and development, with emphasis on new technology to help people and goods move more efficiently and more safely. The \$289 million we request for the Intelligent Vehicle Highway System will not only help drivers find the best route to their destinations, but also help them avoid obstacles and other vehicles on the way.

To take advantage of all the available opportunities that technology might offer, we have made several structural changes within the Department. We have created a new internal coordinating committee chaired by my Deputy Secretary, Mort Downey, to manage technological development. I've also designated a new director of technology deployment to integrate the Department's research and development programs into a cohesive package.

In addition, we have reached out to other agencies—the Department of Defense Advanced Research Projects Agency, ARPA, and the Departments of Commerce and Energy—to leverage more research and development funds for transportation-related technologies. The sad fact is, Mr. Chairman, that those departments have far more funds available for R&D than does the Department of Transportation, and we have found a way to access those dollars to help us in the transportation area. One of the first technology reinvestment project grants, for example, will be for the development of advanced phased array radar to provide simultaneous weather and air traffic information.

A number of other TRP grants are applicable to our safety mission. Last fall the President's Science Advisor asked me to take the lead in establishing an Interagency Coordinating Committee on Transportation Research and Development, and we will use this effort to prioritize technological advances throughout the entire Government, including those needed to address transportation safety challenges.

One of the most far-reaching applications of new technology has been the Global Positioning System developed by the Department of Defense. GPS will have a profound impact on transportation safety, which is one of the reasons we have doubled our budget in the GPS area. We have met with the Department of Defense. We have worked out an agreement with then-Secretary Aspin, and we have now agreed on a joint management approach to GPS to bring it on-line faster and make it more available to users throughout the world and our country.

GPS provides precise real-time position determination virtually anywhere, allowing, for example, far safer navigation by ships in tight harbors. It currently has the ability to provide low-cost non-precision landing guidance at small airports. For example, Continental Airlines in Colorado recently flew, I believe, the first commercial application from Denver to Aspen and Steamboat Springs with FAA approval.

We are also doing research on human factors, such as operator fatigue. The fatigued truck driver, the weary airplane crew, the drowsy automobile driver cannot operate their machine safely regardless of how sophisticated the design of the vehicle. That's why we have an internal working group to coordinate this kind of research, the results of which will enable us to better prescribe limits on duty hours and requirements for rest periods and to identify other fatigue countermeasures.

The fourth point in our safety action plan, Mr. Chairman, is to use our safety information better and to make sure that we have what we need to allocate resources and to set priorities for rule-making and enforcement. For example, the Federal Highways Office of Motor Carriers has recently stopped requiring carriers to file annual paper reports on their safety performance. Why? Because the data was often incomplete and always came in late and was essentially useless. Instead, we are tapping directly into State Police records, through an electronic linkage called Safety Net, to get complete up-to-date information that will let us focus enforcement efforts on the companies with the worst safety records. In return, States can use the same linkage to get nationwide information to aid their own local enforcement efforts.

To go still further, there has begun a pilot program to link police safety data taken mainly from the on-scene accident reports with hospital medical and insurance data networks that track the injury victims after they are removed from a crash scene. The result will be new insights into injury mitigation mechanisms that can feed directly into reducing human suffering and minimizing health care costs.

One of the recommendations of the National Performance Review was to develop common Government-wide measures of transportation safety to develop uniformity among agencies and their customers and to permit consumer choice through cross-modal safety comparisons. I've established a working group under the direction of my Assistant Secretary for Transportation Policy to implement this NPR recommendation. All of the operating administrators, including the newly established Bureau of Transportation Statistics, are members, and we will soon expand beyond the Department, and I believe that through this work we will improve our effectiveness by avoiding duplication of effort among our own operating administrations. Moreover, we will facilitate the flow of information to and from other agencies, like Labor's Occupational Safety and Health Administration, the NIH Centers for Disease Control, and the Consumer Product Safety Commission.

As required by ISTEA, the BTS will compile and analyze and publish a comprehensive set of transportation statistics. Their safety data will not only be available to safety professionals here at the Department, but also to States, academia, and local law enforce-

ment officials. In fact, BTS has now made 30 years of data that the Department had accumulated available in electronic form on a CD-ROM or a floppy disk.

BTS will publish its first annual report very shortly and is now conducting preliminary analysis of data in that report. This will further help us in our standardization in collection and reporting efforts. It will also identify any need for new or modified data collection programs to provide us the information we need to marshal our safety resources and to do a better job in anticipating and in forecasting future safety problems we might experience for the remainder of the decade and beyond.

Mr. Chairman, your letter of invitation also asked that I address our progress on four other NPR recommendations. I have included their status in my written comments, so let me close by thanking you again, Mr. Chairman and Members of the subcommittee, for the opportunity to share my views on this cross-modal safety effort, and I would be very pleased to answer your questions.

Mr. BORSKI. Thank you very much, Mr. Secretary. That was a very thoughtful, well-done statement.

Let me ask the Members—we only have the Secretary for a limited amount of time, and I think the best way to proceed would be perhaps to ask one question each while that time remains.

As I understand it, Mr. Secretary, you have 10 minutes or thereabouts?

Mr. PEÑA. Mr. Chairman, I've been handed a note that my next event has been cancelled, so I have a little more time. I'm available all day. Not quite. [Laughter.]

Mr. BORSKI. Boy, did you just make your first mistake as Secretary. [Laughter.]

Mr. PEÑA. Mr. Chairman, I think I was going to stay until 11:30. Can we go to 11:40? Would that help?

Mr. BORSKI. You'll be out of here well before that.

Mr. PEÑA. I mean 10:40. I'm sorry. Not 11:40, 10:40.

Mr. BORSKI. I think we can arrange that.

Mr. PEÑA. I'll be as flexible as I can, Mr. Chairman.

Mr. BORSKI. Thank you very much. So we will then go back to the normal five-minute rule. In the past, DOT has sometimes waited until a tragic accident occurred before correcting a hazardous condition. Is it the policy of this Department to be proactive in correcting safety problems or to be reactive to accidents as they occur?

Mr. PEÑA. Mr. Chairman, I think your characterization is correct that historically, for many reasons, the Department responded to accidents and then worked with the various committees which oftentimes passed legislation requiring new rulemaking to address a problem. We are changing that attitude. We want to be proactive. We need to use the data that we are developing to anticipate safety problems, to be much more in the forefront of finding ways to resolve these issues before they become national tragedies, and we would appreciate any guidance and support that you and the Members of the subcommittee can provide us in that effort. I think probably the most important thing we can do to get these death rates and injury numbers down significantly in a short period of time.

Mr. BORSKI. Mr. Secretary, do you believe that you have adequate data on the extent and causes of safety problems for setting safety regulatory priorities and targeting enforcement resources?

Mr. PEÑA. Mr. Chairman, generally speaking, we do have adequate safety data. However, there are areas where I think we need to improve the quality have and the usefulness of the data that we have. I mentioned one example earlier where we were collecting massive amounts of data that actually were not very helpful, that we were not able to utilize.

So, generally speaking, we have adequate data. We need to develop better data as respects the exposure rates of potential systems and operations, and we're working to improve that data collection.

Mr. BORSKI. Do you have a percentage breakdown of the probable causes of accidents in the various modes?

Mr. PEÑA. I would have to ask the modal administrators to address that by mode. My thought is that it is probably better in certain areas than in others. We'd be happy to give you our best estimate on what those percentage breakdowns are mode by mode. We'd be happy to do that.

Mr. BORSKI. If you could submit that for the record.  
[The information received from Mr. Peña follows:]

**ACCIDENT CAUSATION BY MODE**  
**Percentage Breakdown**

Each of the operating administrations has developed information on causal factors in the categories that allow them best to anticipate accidents and develop countermeasures useful to their mode. The following summarizes their data and categories for selected periods:

OPERATORS Includes errors or failure of persons aboard or operating vehicles

EQUIPMENT Includes mechanical, electrical, material or software failure in system or vehicles

ENVIRONMENT: Includes conditions in natural environment (e.g. weather) and man-made environment (e.g. right-of-way)

EXTERNAL Actions by humans outside the vehicle (in aviation: air traffic controllers, mechanics, and operators of airport equipment) or (in rail: grade-crossing accidents)

OTHER Includes incidents where cause is undetermined, or in categories other than the above

MODE	OPERATOR	EQUIPMENT	ENVIRONMENT	EXTERNAL	OTHER	TOTAL
HIGHWAY (700 recent Crashes) 1/	87%	3%	10%			100%
AVIATION (Accidents, 1986-1990) 2/						
PART 121	51%	12%	28%	33%		124%
PART 135	73%		34%	35%		142%
AIR TAXI	77%	12%	30%	13%		131%
GENERAL AVIATION	84%	23%	65%			172%
HELICOPTER	76%	29%	42%			147%
MARINE (Incidents, 1992) 3/	52%	32%	15%		1%	100%
RAIL (Accidents, 1989-1992) 4/	33%	15%	33%	6%	13%	100%
NATURAL GAS PIPELINE (Incidents, 1992) 5/	2%	17%		48%	33%	100%
HAZARDOUS LIQUID PIPELINE (Accidents, 1992) 6/	7%	36%		22%	35%	100%
HAZARDOUS MATERIALS (Incidents, 1992) 7/	73%	20%		3%	4%	100%

1/ NHTSA defines several subcategories of human error; together they constitute the overwhelming major cause of highway accidents. Because the entire volume of traffic on the highway constitutes the system, no "External" NHTSA causation category exists, although in a multiple-car accident, the occupants of one car may be victims of a human error by the driver of another car.

2/ FAA/NTSB accident investigation yields multiple broad cause factors contributing to accidents, and FAA reports the top 5. Since some cause factors appear several times, the percentages may total more than 100%.

3/ USCG reports show about 1% are those incidents involving a hazardous materials spill that are not associated with a vessel accident/incident; no other mode makes a separate report.

4/ Track-caused accidents are classified under Environment: some may be due to floods, landslides, and other natural causes, while others may be due to maintenance problems.

5/ RSPA reports that the major single cause of Natural Gas pipeline incidents is external force (third party damage) such as construction equipment. The "Other" category includes such causes as outside damage where fault cannot be determined and human error.

6/ External damage is the largest single cause of Hazardous Liquid pipeline accidents in number, quantity spilled and in dollar cost, the "Other" category accounts for such causes as human error, valve leaks and deterioration due to age and represents a large number of accidents, but considerably less cost.

7/ The Equipment category includes "package failure", external category includes package failure caused by "vehicular accident/derailment".

Mr. BORSKI. In 1989 the National Transportation Safety Board observed that operator fatigue was a common problem in transportation accidents and recommended that DOT review and upgrade regulations governing hours of service for all transportation modes to assure that they are consistent and that they incorporate the results of the latest research on fatigue and sleep issues. What is the status of the Department's response to this recommendation, and do you think that hours of service regulations are adequately enforced in all the modes?

Mr. PEÑA. Mr. Chairman, this is something that we are constantly reviewing. Each of the modes is regularly examining this area, and we've had, I think, a very good relationship with the NTSB in this area. I understand you will have a witness later on this morning to address this matter. So it is constantly under review. I am particularly sensitive to it. I can recall that, I think, within 30 days of when I was first sworn in last year, we had a suggestion that we ought to relax some hours of service rules, and I had serious questions about it, and so I think we're spending special attention to ensure that we have adequate rest periods, et cetera.

Mr. BORSKI. Do you believe that you have adequate statutory authority in all transportation modes to regulate transportation safety effectively?

Mr. PEÑA. Mr. Chairman, generally, yes. It's our feeling that the current statutory authority we have is sufficient. Again, I think we simply need to continue to do a better job in fully utilizing the authority that we have, using new technology, trying to think more creatively to anticipate problems rather than simply waiting for accidents to occur, and that's the focus of the Department.

Mr. BORSKI. The National Research Council has described the fishing industry as the most dangerous industry in America. Do you think you have adequate authority to regulate fishing vessels? The Department also lacks authority to inspect tug boats and barges. Is there any reason why the Coast Guard should inspect other commercial vehicles but not tugs and barges?

Mr. PEÑA. Mr. Chairman, as respects tugs and barges, as a result of the Mobile tragedy, we recommended significant improvements both for the tug operators and also for the actual bridge crossings themselves. Those were developed, I think, within 30 days after the accident. We sent them to the Congress. We are now moving to implement those. If there is further authority needed, I am confident that we will advise the committee, and perhaps we can work together in examining that subject.

Mr. BORSKI. Okay. Let me now yield to the gentleman from Oklahoma.

Mr. INHOFE. Thank you, Mr. Chairman.

Mr. Secretary, while this is the I&O Subcommittee, I'm also on the Aviation Subcommittee. We are planning, after we receive from your Department or from the Administration some of the details on the proposed plan that's been characterized as privatizing of the air traffic control functions—I don't call it that, because I see that as going to a Government-run corporation—that we would want to have hearings on this, but we can't do that until we get some of the details, and in lack of details, there's a lot more hysteria out

there than there would normally be. So I guess the first question would be, when can we expect to have some of the details of that particular policy and program change?

Mr. PEÑA. Congressman, it's a very good question, and we are working to put in place a systematic, structured process that allows us to provide information to the Congress while we are in the process of finalizing the proposal. Let me be more specific. Our goal is to complete the legislative proposal by April. We recognize, however, that if we cannot get it done by April, that does not leave much time for the remainder of this year to implement the legislation.

It is important and critical for us—and we have a very large committee from all parts of the Government focused on this effort—to find a way to regularly communicate with the Members on the key committees about the progress of our work. The last thing we want to do is to complete the project in April and then bring it to you for the first time and then expect you to understand it and quickly move on it. So we need to find a way to provide information—

Mr. INHOFE. As you're easing into that, instead of coming back and saying, "Here's the final product," maybe we can get some reports so we can kind of monitor it as it goes along. I am trying to be open-minded on it, and yet I see our air traffic control system has done such a superior job, and we are so dependent upon it. As you've noted over here, the safety record speaks for itself. There are also some cost considerations. It appears to me that this new system is predicated on the assumption that it should be totally supported by the flying public and that there's no value to the public other than the flying public, which I would argue with.

So we would like to be a part of this as it develops, and I do applaud you for the type of committee and the membership of that committee that's going to have input as you go along.

You mentioned the GPS system, and it reminded me a little bit of a problem that I've seen with the FAA over the years, and that is it seems, as is the case in any bureaucracy, it takes a little longer than it really should to have some of these technologies come on-line. GPS, for example. I used two GPS systems going around the world. We never lost it all the way around. We knew within 15 yards of where I was all the way across Siberia at any time, even shot what I considered precision approaches on old NDB approaches in the Soviet Union.

But the problem with this is that this technology moves so fast—and I'm going through the same thing on the Armed Services Committee trying to get them to use it to a greater extent—by the time they go through the process of adopting a policy of using the GPS, it's one-fourth the cost of what it was initially, and they're tied into this initial cost. So technology is moving so rapidly that I think it's going to be necessary for the FAA and the Department of Transportation to move faster, as well as the Advanced Landing System and some of the other landing systems—not just the GPS, but the other technologies. Has this been called to your attention?

Mr. PEÑA. Absolutely, Congressman. I'm very much aware of it and, frankly, just as frustrated about this as others are. One of the problems we are trying to fix in the FAA as part of the concept of

creating a Federal corporation is this problem. The present procurement system has, I think, placed a straitjacket around that agency, and has prevented them from bringing new technology on much more quickly. We have experienced—for example, the HOIST system of years ago when, by the time the FAA brought it on board and it was operational, it was outdated. In fact, the companies that were providing the information and the parts were no longer producing it.

So we've got to make this entity more entrepreneurial, more nimble so that it can move much more quickly to bring on new technology like GPS and the Advanced Automation System, et cetera, which I believe will improve safety. So that's one of the problems we're trying to address.

Mr. INHOFE. I'm glad to hear that, Mr. Secretary, because you have a lot of airports out there right now that would never be able to qualify for an ILS system, but they would for an ALS system, and if it's delayed a month or a year or two years, there could very well be accidents that could take place that would not take place if you had that type of a landing system in place. So I'm glad that you're sharing my frustration and I'm sharing yours.

The last question I wanted to ask, I mentioned in my opening remarks something—you may not have been familiar with this, because this is mostly the Customs Department and not the Department of Transportation. However, in the problem that I pointed out, some of the entries in aircraft logs being fictitious have the result of aircraft flying around with run-out engines when the purchaser had been led to believe that they are actually overhauled engines. It's my information—and as soon as we get the investigation that is under way right now completed, we may have to come to you regrettably and say—that there have been several deaths in fatal accidents as a result of faulty plating of engines. Are you familiar with this problem?

Mr. PEÑA. Not that specific problem, Congressman. I am aware of the work we did on the bogus parts problem a year or so ago, where our OIG, I thought, did a great job.

Mr. INHOFE. Yes, sir. This is a totally unrelated thing to that. This is not bogus parts. This is actually having the wrong engines, the engines not matching the logbook and, as a result of that, accidents taking place, and we will have that evidence to give to you, and I think it's going to mean a lot of tightening of our system, even though what I'm referring to right now, most of the complaints are not against the Department of Transportation. They've been against the Customs Department. But we'll be bringing that to you.

Thank you very much.

Mr. PEÑA. Thank you.

Mr. BORSKI. The Chair thanks the gentleman.

The gentlewoman from Virginia, Ms. Byrne?

Ms. BYRNE. Mr. Secretary, you covered in your strategic plan the air corridors and the highways and everything that's above ground, but you have oversight of a highway system below ground that we call pipelines. I think nothing was more startling during the California earthquake than to see the number of fires from these pipe-

lines, that it wasn't the damage of the shaking of the earth, it was the explosion of these pipelines.

It seems to me that although you have some additional money, I noticed, in this year's budget for pipeline safety, that not looking at part of the Office of Pipeline Safety integrated into the strategic plan leaves it in question about whether there is a recognition that pipelines are a problem in terms of safety. Could you comment on that?

Mr. PEÑA. Yes, Congresswoman. Let me say that if that was the impression I left, let me correct the impression. The pipeline area is very much a part of this cross-modal effort in our focus on safety and in my strategic plan. We have had extensive conversations about the pipeline challenges that we face in the country, and in RSPA we are reorganizing and refocusing our energy, because we think that in the liquified pipeline situation we probably have more significant challenges than in the non-liquified area, so we're reshaping the RSPA operations to focus on the liquified side of this.

So I'm very much aware of it. We experienced the same problems with the Midwest floods, for example, where we had, I think it was, butane tanks that were floating in the river. So it will continue to be part of our cross-modal effort in the area of safety.

Ms. BYRNE. Thank you, Mr. Chairman.

Mr. BORSKI. The gentleman from California, Mr. Baker?

Mr. BAKER. Under the accusation that I might be parochial, could you give us an estimate of the cost of the Los Angeles disaster in terms of what do we need to do immediately to get the roads back in shape, and then what do we need to do long range to retrofit the aging freeway system in Los Angeles?

You gave a great example of the rail filling in with 50,000 people for the breakdown in the freeway system. Los Angeles is 20 years behind Northern California in rapid transit, and they have something like 14 miles of rail instead of 4,000 miles that they need, and the cost, of course, is a major impetus in getting it going. In Northern California, they jumped up to 280,000 from 200,000 a day ridership after the quake hit. Of that, 250,000 stayed with it afterwards. So building new stations and getting them trained to use rapid transit, as I used the Virginia Railway Express this morning and then used the Metro to get to Capitol South to attend Jim's prayer breakfast, we have to train ourselves to use those kind of systems, and this earthquake gives us a great chance to do that.

But back to the question, the immediate cost of replacing the freeways in the \$10 billion package and the long-range cost of retrofit only.

Mr. PEÑA. Congressman, I'm doing this by memory. I believe the cost for replacing the highways is \$1.1 billion. It could be a little higher than that. It was an additional \$300 million to \$350 million to deal with the non-highway aspects of the transportation disruptions—transit, helping build some of the stations I referred to earlier, doing some work encouraging riders to use van pools and to share cars together, and other non-highway sorts of improvements.

As respects the long-term cost of retrofitting all of the structures that you referred to earlier, you're absolutely correct, those structures that were retrofitted withstood the earthquake. The ones that Caltrans has not been able to access were the ones that fell. I can't

give you that number right now. Caltrans does have that number, and in effect it had triaged all of its freeway system in the State, dealing first with those that were the weakest and putting off those that were the strongest. But they have that information. We can provide it to you.

One thing that we're going to discuss with Caltrans is how we can accelerate that retrofit program, because it is a very good investment. We know that it is effective, it works, and the quicker we can do it, we think we can avoid long-term deaths in the event that we have another earthquake and certainly make those structures stronger much more quickly. And it works, so I think it's something we need to work with Caltrans with to see if we can accelerate the program.

The reference in my testimony about using composite materials and new technology is another thing that we ought to move on, and I think that provides us with some very exciting opportunities to use that new technology to wrap around those structures to make them stronger.

Mr. BAKER. A politically sensitive question. I was down there Friday morning after the quake, and the contractors complained that they had raised the minority hiring quotas to 40 percent, and they were willing to do this when they were talking about construction workers, flag women, all kinds of other jobs, but they had the big jaws that crunch up the freeways and recycle the metal out of the freeways—and, by the way, we ought to take a lesson from what they did down there. All the iron went to resmelting, and all of the cement went somewhere else. Those big machines aren't owned by mom-and-pops. They're owned by corporations.

When we have a special incident like that where you need a specific piece of equipment or some technical job has to be done, we're fooling ourselves by saying, "Well, 40 percent of these people will be Hispanic, black, whatever, women" when XYZ Corporation owns them and whoever runs them runs them. We should exempt those. Because the answer was, "Well, just go out and hire a counterbalancing bunch of people and have them stand over there." In other words, be wasteful of the Government's money in order to meet some artificial quota.

We all agree on getting—especially in Los Angeles, where they have an abundance of minority workers—getting them on the job, but when it's impossible to do that, we ought to say, "We've got to have three of these pieces of equipment. We're going to exempt those from the quotas." It's going to take guts to do that, because politically it's not a great thing, but we're wasting the Government's money, and pretty soon the public is going to be out to hang us for that.

The last thing. Do you see merit in moving the gas tax money back into transportation, the 2.5 borrowed in 1990 and the 4.3, or do we—I don't want to ask you where you're going to get the money to pay for this \$6.8 billion or so we're going to spend unless we do recapture that money.

Mr. PEÑA. Congressman, we're always happy to have more money come into the fund for highways and transportation, but you hit the nail right on the head, and that is, what is the impact on the budget and the deficit? So as you know, last year we made a

decision to get that 2.5 cents back into the trust fund, and I think you're correct when you say it was not until 1995, but that was a major step, and that was a major battle, and I want to say that both the President and Mr. Panetta agree that it was the right thing to do. So whether we can take it a step further, I can't say this morning.

Mr. BAKER. You would be the only one speaking up in cabinet meetings for it, but it might open their eyes that we're going to spend the money anyway, so it's a matter of do we put the apples back with the apples and be honest with the public that we're taking your money out of the gas tax and we're going to spend it to retrofit so in the next disaster we won't have 10,000 people dead.

Thank you very much for being here. You're doing a great job.

Mr. PEÑA. Thank you, Congressman.

Mr. BORSKI. Mr. Secretary, I would like to go back to the charts you mentioned. Could you repeat what you told us on the charts?

Mr. PEÑA. Sure. Why don't we start with the first chart. For the first chart, let me look at the exact numbers so I will be precise about this. Give me one second, Mr. Chairman, please.

The first chart is the highway fatalities and vehicle miles traveled, and we start on the left with 1980 figures all the way down to 1992. What we indicate is that the drop went down by 23 percent from 1980 to just over 39,000 in 1992, and in terms of the vehicle miles, we started at 1.5 trillion vehicle miles traveled in 1980, which increased to 2.2 trillion vehicle miles in 1992. So in spite of a very significant increase in vehicle miles traveled, we had a very significant drop in the deaths.

Mr. BORSKI. And then, of course, the health care costs you wanted to—

Mr. PEÑA. The health care costs is Chart 3, and this, I think, is a very instructive chart, which simply indicates that even though we have seen significant reductions in deaths and injuries in the transportation system in our country, the health care costs have exploded. They have gone from \$5.4 billion in 1980 to \$15.9 billion in 1992.

I've talked to the President about this, and the Department is now very much a part of that health care initiative. At first people were a little surprised, because we weren't naturally part of health care, but when we saw this data and when the President, in one of his health care principles, talked about responsibility, we have started a program throughout the country to remind people that simple things like buckling your seat belt, taking two seconds to do that, drives down health care costs. And when we pointed out that in certain of these costs, we, as taxpayers, are paying for those costs, I think that message got across.

I know when I was mayor, Denver General Hospital, which is a public hospital, would service people who came into that hospital who had extraordinary injuries or who died because of accidents, and they had not taken some very simple safety precautions, and we, as taxpayers, paid those costs.

So we're trying to educate the American people that it is beyond just safety. Safety is important, and reducing injuries is important, and eliminating deaths is important, but it's also a pocketbook

issue, and each of us ultimately end up paying for some of these costs.

Mr. BORSKI. I believe in your written testimony you mentioned \$14 billion in health care expenditures in 1990, and \$4 billion was directly attributable to Medicare and Medicaid.

Mr. PEÑA. Correct.

Mr. BORSKI. What's the one single initiative you think the Department could take to slow the growth of these costs?

Mr. PEÑA. Again, Mr. Chairman, there are several initiatives. One is, we have increased the target for safety belt use in our country to 75 percent usage. We have increased our target for reducing the number of accidents that are caused because of alcohol use. We're working very closely with the States. For example, Governor Hunt in North Carolina had an exceptional program called "Click It Or Ticket," where they started to ticket drivers who did not have their safety belts on. In three months, they got their usage up to about 82 or 85 percent, one of the highest in the country.

At first people raised questions about why the State and the Federal Government and others were working on this issue, until we had a young lady show up at the press conference the Governor had to announce the results, and she said that while she was driving down the highway and she passed up a State patrol, she was reminded of the program, she put on her safety belt, three minutes later she had a head-on collision, rolled over several times in her vehicle, and said that she was there to celebrate Christmas, to be with her family, because she was reminded to put her safety seat belt on. Imagine if we could multiply the number of times people do that in our country, we could drive these costs down very significantly.

Mr. BORSKI. Thank you very much, Mr. Secretary.

Does the distinguished Chairman desire recognition at this point? Mr. Mineta?

The CHAIR. Thank you very much, Mr. Chairman. I just want to welcome the Secretary here, because he has been so attentive to this whole issue of safety, and I think the big thing that we would like to convey—at least, I would like to convey—is the fact that to the extent that the Department of Transportation is sort of decentralized in terms of how it works, that there aren't differences in standards that, in the final analysis, don't bring us the kind of results we ought to be driving toward.

The fact that, let's say, in terms of commercial aircraft, we say GPS or we're maybe going toward GPS, whereas a person who's a tug captain doesn't even have to have a compass on board. The disparity is so wide that no matter what the disparity is, the result is still measured the same in terms of accidents or fatalities or whatever it might be, or in terms of the injury to the environment as in the case of the Exxon Valdez.

So I know that you're attuned to these things. It's a question of trying to make sure you have the financial resources to do it. But I would really like to have you orchestrating the total Department's efforts in some kind of a common effort, because from what I can see, the decentralized nature of the Department is such that we

really have disparate results and disparate rules and regulations, depending on the mode.

I was just saying to Dr. Wells that the requirement to hold the seat of a car is to withstand a 20-G force, but as I understand it, for an airplane seat, it's a 9-G. Now, why do we have this kind of disparity in terms of the bolts that hold the seat to the frame? Why is there that kind of disparity?

You, Mr. Secretary, to your credit, acted in the situation involving the Amtrak Sunset Limited disaster in Mobile, Alabama, and I think that shows, again, your concern about where we have to go in terms of establishing the higher standards. But I would also like to make sure that whatever we would like to do is also restricted by our committee jurisdiction, and sometimes that won't prevent us from making comments, of course, on these issues, but we are limited in terms of what we can do. But I think if we are notified, that we would be more than willing to work with the relevant committee of jurisdiction to work out our common problems.

But I just want to, again, thank you and salute you, Mr. Secretary, for your commitment to safety. This has been apparent ever since you came into office, and I know that having traveled with you for three intensive days following the Northridge earthquake, for which I want to thank you for your presence during that time, but I know that your paramount interest at that point was in terms of the safety of the thoroughfares, the safety of the workers who were there, and also to expedite the availability of these avenues of travel back onto the system as quickly as possible.

So, again, I just want to thank you for your leadership.

Thank you, Mr. Chairman.

Mr. BORSKI. I'd like to thank the distinguished Chair and enter his prepared statement into the record

[Chair Mineta's prepared statement follows:]

CHAIRMAN NORMAN Y. MINETA

COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION  
SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT

HEARING ON INTERMODAL TRANSPORTATION SAFETY

FEBRUARY 10, 1994

The beginning of a new administration is a good time to reflect on what progress we are making on transportation safety and what problems remain to be dealt with. We had originally hoped to have this hearing last year, but the press of other business forced us to hold it off until now. Still, it is early in the life of this administration, and I look forward to the opportunity to explore with Secretary Pena our priorities for transportation safety rulemaking and enforcement for the next few years. I want to urge the Department to review closely the testimony from NTSB and GAO, because they both offer numerous excellent suggestions on areas that should be safety priorities for DOT in the next few years.

In some respects, we have made good progress in the last ten years. On our highways, the automobile fatality rate has fallen about 30 percent in the last ten years, and similar declines have been registered in most of our other passenger modes. But truck and rail fatalities have remained fairly stable, and some modes continue to show substantially higher fatality rates than others. Yesterday, our Aviation Subcommittee focused on one of these problem areas--commuter aircraft.

We have also had the experience in the last few years of seeing accidents occur that illustrate the wide variation in safety standards in the different modes. The Amtrak Sunset Limited disaster in Mobile, Alabama, this fall showed how modest our navigational equipment requirements are for tugboats--no charts, no radar, no compass required. To his credit, Secretary Pena has acted to remedy this situation, but in the future, in cases like this where the need for higher standards seems obvious, we need to make the changes before the tragedy happens, not after. Our highways and our railways are not safe as long as they cross bridges that are vulnerable to collisions from wayward barge traffic.

The Exxon Valdez disaster illustrates the weaknesses of the Coast Guard's Vessel Tracking System as compared with the FAA's Air Traffic Control System. When you have an exhausted third mate piloting a huge oil tanker and dodging icebergs in constricted waters, you would think that the Coast Guard would see it as their responsibility to give the vessel all the assistance possible to avoid the rocks. I would also think that the Coast Guard's responsibility to the rest of us would be to order such vessels out of danger, rather than wait for them to ask which way to go. This Committee is handicapped in meeting its responsibility to keep the waters of the United States clean if we can not ensure safe operation of oil tankers and barges.

And finally, the continuing stream of trucking accidents caused by driver fatigue--almost 2000 fatalities per year, according to NTSB data--forces us to raise the question of whether our procedures for enforcing hours-of-service requirements are adequate. Perhaps it's time to revisit the need for on-board data recorders to remedy the widespread violations of these requirements. The drivers themselves report that their fellow drivers routinely violate the hours-of-service rules.

So we've made some good progress, but we still have a full agenda. I salute Secretary Pena for his commitment to transportation safety. I salute the Chairman of this Subcommittee, Mr. Borski, for his leadership in scheduling these hearings, and I look forward to the testimony.

Mr. BORSKI. If there are no further questions—Mr. Baker?

Mr. BAKER. I appreciate the paid political announcement on health care. Do you have Chart No. 4, legal costs per accident?

Mr. PEÑA. We should develop Chart No. 4.

Mr. BAKER. The room isn't tall enough. [Laughter.]

Mr. BORSKI. Mr. Secretary, again, we want to thank you very much for coming here today. We're most pleased you could fit us into your busy schedule, and we want to again congratulate you on the outstanding job you're doing and being the leading advocate for safety in this Nation. Thank you, sir.

Mr. PEÑA. Thank you, Mr. Chairman.

Mr. BORSKI. Our second witness this morning is Dr. John K. Lauber. He's a member of the National Transportation Safety Board here in Washington, D.C.

Dr. Lauber, could I ask you to please rise and raise your right hand?

[Witness sworn.]

Mr. BORSKI. Thank you very much, sir, and we have your written testimony. You may proceed.

**TESTIMONY OF DR. JOHN K. LAUBER, MEMBER, NATIONAL TRANSPORTATION SAFETY BOARD, ACCCOMPANIED BY DR. BERNARD S. LOEB, DIRECTOR, RESEARCH AND ENGINEERING**

Dr. LAUBER. Thank you, Mr. Chairman.

Good morning, Members of the committee. I'm delighted to be here to represent the Safety Board before the committee this morning. I have with me Dr. Bernie Loeb, the Director of our research and engineering organization at the Safety Board.

I want to echo the Secretary's comments commending this committee for focusing attention on the cross-modal aspects of transportation safety. It's an issue that has been of interest and concern to the Safety Board, primarily because a very large number of accidents that we've had cause to investigate at the Safety Board have involved or have pointed to common issues, areas of commonality as far as causality of accidents, and also pointed to the need for co-ordinated, integrated action to solve some of the problems that lead to accidents. So I think that it's very important that the committee and all of us involved in transportation safety focus our attention on the cross-modal aspects of the safety problem.

We have, in our written testimony, discussed several aspects, several of the common issues that we've identified during the course of accident investigation. I want to just touch briefly upon those in my summarization of the prepared testimony.

We have found, as has already been mentioned, strong evidence of the pervasive effects of sleep-related problems in transportation. We've seen repeated instances of poor scheduling of work and rest periods in various transportation modes that have or might have been directly involved in the cause of the accidents that we've seen through the effect on the performance of the operating personnel involved in those accidents. We see some clear-cut instances and frequently some horror stories particularly in the highway, railroad, and marine mode with regard to the fatigue issue, and we

have long advocated at the Safety Board the development of a co-ordinated attack on this serious problem.

In the aviation mode, particularly in commercial aviation—and there are probably a variety of reasons for this—we tend not to see the issue crop up as frequently, although it does from time to time. In fact we are currently investigating an accident involving a DC-8 operated by a supplemental air carrier in which it appears that fatigue and crew rest are issues. So it does show up in aviation as well, although we see more instances of problems in this area in the other modes, as I've mentioned.

We know that in order to address these problems, it's going to take a concerted effort on the part of the Department to develop coordinated approaches. In 1989, we issued a set of recommendations to the Secretary of Transportation to basically increase the cooperation or the degree of coordination of research focused on fatigue and sleepiness issues as they affect transportation safety, and to also look at and develop across the modes education and training efforts.

Many of the problems that we see with fatigue and related areas can be dealt with by more effective training and education on the part of personnel, allowing people to more effectively manage their own rest schedules and making sure that they make maximum availability or take maximum advantage of the availability of rest periods when they occur. This can have a significant effect on the issues of safety, and so that was another area that we recommended that the Department take a more coordinated approach on.

And finally, of course, we urged that they take a look at the regulations governing these aspects of transportation safety in the various modes. The particular emphasis is not necessarily to come up with a uniform set of regulations, because the demands of the different modes do result in certain differences in this area, but I think the most significant issue is to make sure that the regulations that are in place are put on a good, sound scientific footing. There's been a lot of good scientific work done in the past couple of decades on these issues, and I think we have a pretty good understanding of what can be done to more effectively manage these problems.

Another area that we touch upon in our prepared testimony has to do with aspects of team performance as opposed to individual performance, and this is in the area of crew or cockpit resource management, an area that grew out of aviation, where we recognized that many aviation accidents were caused by deficiencies in team work—a failure to coordinate, a failure to communicate, failure of leadership, and other kinds of things—and that these skills are trainable. The aviation industry has made great strides in terms of developing specific training focused on these issues. Such training is in place widely around the world now, and we believe that it has application in other modes as well.

We have seen this particularly in the marine environment, which is another environment where good, effective team work is required on the part of personnel on the bridge of a ship. We believe that this training and the principles developed in aviation could be applied there as well. There are other instances that we could men-

tion where the application of principles developed in the aviation mode could in fact alleviate some of the problems that we see in the other modes as well.

The third specific area that we mentioned, is drug and alcohol testing, and we have often pointed out the need for a more uniform approach with regard to drug and alcohol testing across the modes of transportation. We have specifically been concerned and most recently gone on record with regard to the post-accident drug and alcohol testing requirements. Back in April we commented on the rulemaking, which has culminated with the issuance of the rules just last week, as the Secretary mentioned. We have not yet had an opportunity to review the rules as they now exist to see whether or not particularly those post-accident testing requirements and the need for more uniformity have been adequately addressed. However, we are looking forward to being able to review and address the regulations from that point of view.

On a broader front, we also see individual accidents themselves crossing the individual modes, and the circumstances of the Amtrak accident near Mobile, Alabama on September 22, 1993 are well known to Members of this committee. We know that a barge lost in the fog entered a bayou, struck the railroad bridge, and the resultant damage to the bridge shifted the track sufficiently so that the lead Amtrak locomotive struck the girder span, leading to the derailment and the loss of 47 lives in this tragic accident. We have seen similar accidents. We've investigated a number of accidents involving collisions between barges and fixed structures such as bridges, including one just a few months before the Amtrak accident in New Orleans, again involving loss of life and significant economic impact.

We conducted public hearings on each of these accidents, and the results of those deliberations suggest that renewed efforts are needed by the modal administrations—particularly the Federal Highway Administration, the Federal Railroad Administration, and the U.S. Coast Guard—to coordinate their bridge/barrier programs in order to prevent such accidents from occurring in the future. We expect to complete those investigations later this year and will share with the subcommittee all of our findings and recommendations that we develop as they become available to us.

Another area that we touch upon briefly in our testimony has also already been mentioned, and that's the whole issue of technology and making more effective cross-modal use of technology. We've already heard about GPS and the great promise that it offers not just in aviation, but in virtually all modes of transportation. Anything involving precise and real-time position and velocity information is an area where GPS is literally going to, I believe, revolutionize the way we do business, and we're looking forward to rapid implementation of that technology in all modes of transportation.

On the broader level, we recognize that there are difficulties in assessing whether safety standards and the resources that are dedicated to their development and enforcement are consistent with the risks posed to society. We don't have the resources at the Safety Board to undertake such an assessment. We are aware of the many efforts within the Department and elsewhere to improve

safety and risk data collection procedures, and I think we have great hopes that the Federal Interagency Transportation Statistics Committee and the Office of Intermodalism offer the possibility that the information needed to make such assessments will be collected.

Basically, the decisions that are made with regard to managing risk in the transportation system are as good as the data on which those decisions and judgments are made, and we have seen many instances where there are insufficiencies in the collection of such data, and we have addressed those again in our testimony.

I think overall it's fair to say that we have seen much better cooperation and communication among the various modal administrations over the past several years. The DOT has taken a number of positive steps to coordinate such safety programs, some of which you heard discussed earlier this morning by the Secretary.

In general, we believe that transportation safety has unquestionably improved over the years. Commercial transportation safety across the board is safer today than it was years ago, and the decline in transportation-related fatalities demonstrates that our safety improvement efforts, as well as those of the modal administrations and the Congress, have achieved tangible results. However, while accepting the statistical reality that transportation accidents will continue and risks remain, this acceptance does nothing to dampen our commitment to providing the safest transportation network possible.

That concludes my prepared remarks, Mr. Chairman. I'll be happy to respond to questions.

Mr. BORSKI. Thank you very much, Dr. Lauber. In 1989 you recommended that DOT develop a coordinated research effort on operator fatigue and develop a more consistent regulatory approach to this problem. How much progress has the Department made in responding to your recommendation, and how far do they still have to go?

Dr. LAUBER. That's an area where I'm happy to report that I think the Department has made significant progress. One of the things that they did was to develop a Human Factors Coordinating Committee, with representation from each of the modal agencies, and one of the specific efforts of that committee was to focus on the issues of fatigue and related areas as they affect operator performance and transportation safety. We have received regular briefings from that coordinating committee. In fact, we had one just a few months ago at the Safety Board. They have attempted to keep us abreast of the developments and the directions that they're taking with regard to those issues. So I think they have made progress and am happy to report that.

Mr. BORSKI. Good. Dr. Lauber, your testimony stresses the need for a coordinated approach within DOT to address safety issues such as operator fatigue or the transportation of hazardous materials, which cut across all modes of transportation. Is there any institutional mechanism within DOT to promote a coordinated approach by the modal administrators to develop solutions to common safety problems?

Dr. LAUBER. I think to the extent that we would be critical of the DOT's efforts in this regard, it keys on the word "institutional." I'm

not sure that these have been institutionalized to the point that we'd like to see and that could be maximally effective. At present, I think it's fair to say that the efforts that we do see—and we certainly applaud them, tend to be ad hoc and do not represent adequate institutionalization.

I think we all believe that it's clear that the synergistic effects that could be achieved by a good, sound institutionalized management approach to these issues could be very, very beneficial, and we would like to see more movement in that direction.

Mr. BORSKI. The Department's recent drug and alcohol role requires a higher rate of testing for drug use than for alcohol use. Is this consistent with the relative severity of drug and alcohol as a threat to transportation safety?

Dr. LAUBER. Mr. Chairman, we have not seen the regulations yet. I'm a bit hesitant to comment on that until we've had a chance to review specifically what the regulatory proposal is. We simply haven't had a chance to do that at this point.

Mr. BORSKI. Let me yield at this point to the gentleman from Oklahoma, Mr. Inhofe.

Mr. INHOFE. Dr. Lauber, you were here when the Secretary was here, weren't you?

Dr. LAUBER. Yes, I was.

Mr. INHOFE. I got into this area of the swapping of the data plates and the falsification. I believe some of the staff here contacted some of your staff at one point or another concerning this problem that exists. I recognize that your primary function is to investigate after accidents, but I also know that you're interested in this type of behavior if it is going on.

I'd ask you the same question I asked the Secretary. Are you aware of this problem and some of the publicity that's been generated in Florida concerning the inaccurate data plates and the falsification of logbooks?

Dr. LAUBER. I'm aware in a general sense of the issue. To my knowledge, it has not come to the attention of the Safety Board through any specific incidents or accidents that we've investigated. So we're aware of it in a general sense and certainly share your concerns in that regard, but as I say, to my knowledge, I don't recall a specific accident in which this has been an issue that has come to our attention that way.

Mr. INHOFE. I think perhaps even though it was not detected by the NTSB, that that might have been case, and you would have no way of knowing if there is falsification.

Dr. LAUBER. Well, that's part of the problem. That's correct.

Mr. INHOFE. Yes, because it would be very difficult. We're going to be having hearings on this, and when that time comes, I would like to have the NTSB really brought into the loop somewhere.

Dr. LAUBER. We'd be pleased to provide whatever information we can on that issue. It is an important issue. We share that.

Mr. INHOFE. Yesterday we had hearings in the Aviation Subcommittee on some of the changes taking place in upgrading the training from Part 135 to Part 121. Are you in the loop on that, and what is your thinking about the changes they're proposing?

Dr. LAUBER. I fully and thoroughly applaud the efforts to upgrade the training requirements. We at the Safety Board have long

recognized and seen frequent instances during the course of accident investigation inadequacies and insufficiencies in training, and we know the power of good, effective training. So we fully applaud the efforts to upgrade that training to a common standard for pilots involved in air carrier operations.

Mr. INHOFE. The third thing that I wanted at least to get some of your thoughts on, it's difficult to ask specific questions as to the transfer of the air traffic control functions to a Government corporation, because there's not enough detailed information to really do an analysis of it. However, you hear the arguments on both sides. Do you have any comments or thoughts on the information that we have so far concerning that?

Dr. LAUBER. No. Again, without having a chance to study specific proposals, it would be difficult to comment specifically. I will say that I think that the debate that's engendered by this whole proposal is going to be a healthy one, because it is going to force to the front of our attention the specific problems that need to be dealt with. The Secretary touched on procurement as being one. We know that personnel and long-term budget planning are others. It is clear that if we're going to further improve an already outstanding air traffic control system, we're going to have to deal effectively with those kinds of problems, and however that gets done remains to be seen.

Mr. INHOFE. Well, I'm one who frequently applauds our air traffic control system and the fine job that they do, and I wasn't as enthusiastic about that until I had something to compare it with in other parts of the world, as I mentioned in my opening remarks. We have a saying in Oklahoma that if it ain't broke, don't fix it. I would hope that you guys would really be a part of what I see as a major proposed change that we would want to look at very carefully before jumping into a major change.

Dr. LAUBER. I assure you that we will, and I certainly share your sentiments that the air traffic control system here in the United States is comparable to none anywhere in the world. We move a tremendous number of airplanes safely day-in and day-out under all kinds of conditions, and I think it's a real tribute to the system that is already in place, and we certainly don't want anything to disrupt that.

Mr. INHOFE. There's almost a type of supernatural allegiance that these people have. I don't look at them as I would any of the rest of the Government employees, because they truly literally have your lives in their hands, and I'm just very sensitive about any changes that might come about and do look forward to working with you on that.

Dr. LAUBER. Same here.

Mr. BORSKI. The Chair thanks the gentleman.

The gentlewoman from Virginia, Ms. Byrne?

Ms. BYRNE. Thank you, Mr. Chairman.

Doctor, on page 11 of your written testimony, you talk about the lack of coordinated activity may stem in part from any differences that exist in the modes in terms of their historical involvement. Regulations for some transportation modes, like railroads and pipeline, evolve from industry-established standards, while, on the other hand, aviation and motor vehicles regulations develop far

more differently. And then earlier in your verbal statement, you talked about strong scientific basis for safety standards.

Has the Safety Board ever looked at these industry standards that were established to see if there's a strong scientific basis for either the pipeline or the railroad safety standards that came from the industry?

Dr. LAUBER. Well, the reference in the testimony has specifically to do with the fatigue and hours-of-duty regulations. That's a specific area where we have noted that there is good, sound scientific data available, and that it's the Safety Board's position that whenever those data can be brought to bear on a regulatory issue, they well ought to.

It's our general impression that regulations governing hours of service or duty time and rest time in any mode of transportation are not particularly scientifically based. These have a long history to them, aviation, of course, being one of the shorter histories, and that explains some of the evolutionary differences that we've seen there. But, nonetheless, none are truly scientifically based.

For example, even in our aviation regulations that govern flight and duty time, none of those regulations now in place recognize that eight hours of sleep is not eight hours of sleep, depending upon the time of day in which you have to take that eight hours of sleep. Eight hours of rest during normal daylight period is not as refreshing as eight hours of rest during normal nighttime. There's a basic physiological mechanism for that, and it's those kinds of things that we think ought to be reflected in a rational approach to this problem.

I'm confident that over the long run we're going to see the modal agencies move in that direction. Right now I think it's true to say that labor agreements and historical evolution have dominated the direction that has been taken in that regard.

Ms. BYRNE. Well, specifically with the pipeline issue, I'm talking about industry standards that we've evidently adopted on pounds of pressure, those kinds of things, and metal fatigue. Have you looked at that through the Safety Board?

Dr. LAUBER. Indeed, every time we have an accident in any mode in which structural or materials issues of that kind come up, we have a very competent staff of metallurgists and engineers and others who address those issues specifically. I think in those areas where there are good engineering standards, whether it's for materials and structures, pipelines or airplanes, or basically any other kind of vehicle, generally we don't see systematic problems in that area.

There may be specific instances where standards could be upgraded to reflect improved understanding, but as a general statement, I think it's fair to say that where good, sound engineering data exists and has for some time, the regulations involving those things in the various modes generally adequately take those into account. There isn't a systematic problem in that regard.

Ms. BYRNE. Thank you.

Thank you, Mr. Chairman.

Mr. BORSKI. Does the gentleman from Wisconsin, Mr. Barca, have questions?

Mr. BARCA. Thank you very much for being here before the committee today. The one area I just wanted to gather some more information on, and maybe you can help me in this regard, is, as I understand it, there have been some pilot programs done on highway fatigue in different States across the country, and I wonder if you have access to that information or where we could be directed to gain more access, and if you have any information in terms of the effectiveness of any of these pilot kinds of efforts.

Dr. LAUBER. We are aware of some programs. I'm not sure that I can respond adequately to your question, but we could follow up with additional information after the hearing.

I personally participated in a program up in Albany, New York just a couple of months ago. It was a kickoff of a statewide program under the direction of Governor Cuomo to specifically focus attention on fatigue as a highway safety issue, and in many ways it's as significant a driving safety issue as alcohol. We've made great strides in terms of coming to grips with and seeing improvements in alcohol-related deaths. We still have a long way to go, but, nonetheless, we've seen significant progress in that direction.

Many people don't realize that fatigue can be just as debilitating as alcohol in terms of impairing human performance and that there are many reasons for this, some of them cultural, and one of the things that the New York State program does or is going to attempt to do is to heighten awareness among the general population as to how fatigue and sleep loss can affect your performance as a driver, your safety as a driver, and I think personally—this is not a position that we've adopted formally at the Board, but my own position is that this kind of approach has great promise for addressing highway transportation safety issues specifically, and I think the same kind of effort could be applied elsewhere.

If I may, in aviation again—it leads the way—when I was at NASA, we started a program that looks at these issues—fatigue, sleep loss, and similar things—in commercial aviation operations. One of the more recent products of that ongoing effort on the part of NASA—and it's been a cooperative program involving the airlines, the FAA, and the NASA research community—has been the development of an education and training module that is specifically focused for air crew and dispatchers and others, but specifically focuses on educating people with regard to basic physiological mechanisms involved in fatigue and what you, as an individual, can do to better manage those aspects of your daily life that can affect the amount of rest and sleep that you get and thereby affect your performance on the job.

This approach has been very well received by the airlines. It's in the process of being adopted by many carriers. I think it has great promise, and I'd like to see more of that in the other modes of transportation as well.

Mr. BARCA. The only other point that I'd make is in regard to commercial drivers, people like truck drivers, people that drive for a living. As I understand it, there have been some States that have looked at the idea of doing things within the truck stops themselves in terms of providing accommodations for people to be able to rest, do away with their fatigue, and I wonder, do you know any steps that have been taken in that regard?

Dr. LAUBER. We're aware that there are efforts to take a look at that issue. I believe the Federal Highway Administration is taking a look specifically at it. I'm not aware of the specific details. I can address the issue indirectly through efforts in aviation again.

There is concern about crew rest accommodations on long-haul airplanes, and we know, again, on the basis of scientific information that's available that the quality of rest that's actually achievable is in part a function of the quality of the accommodations that are provided for this rest—noise levels, lighting, temperature, and the other just basic comfort kinds of things.

So we know, again, that there are better ways to deal with these issues and would applaud their extension to beyond the aviation environment to wherever else it could be of benefit.

Mr. BARCA. Thank you very much for being here.

Dr. LAUBER. You're welcome.

Mr. BORSKI. The Chair thanks the gentleman.

The gentlewoman from Michigan, Miss Barbara-Rose Collins?

Miss COLLINS. Thank you very much, Mr. Chairman, and I have a statement I'd like to be entered for the record.

Mr. BORSKI. Without objection, your prepared statement will appear in the record.

[Miss Collins' prepared statement follows:]

**Statement of Congresswoman Barbara-Rose Collins (D-MI)****Intermodal Safety Issues****February 10, 1994**

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I am pleased that this subcommittee is considering cross-modal transportation safety issues. I am even more pleased that the Secretary came here today to discuss it with us. It is further evidence that when it comes to safety, the current administration and the current Secretary are definitely not all talk.

I am from Detroit. In Detroit we have freeways, an airport, rail and a port. We've got international bridges, barges, ferries, rail tunnels, and budding aviation service. When it comes to intermodalism, Detroit's got it all. This means we also experience, at one time or another, safety issues

**in every mode.**

**So I am very interested in cross-modal safety issues and how we can address both intra- and inter-modal safety problems. I look forward to continued cooperation and mutual support in establishing the safest National Transportation System possible.**

**Thank you, Mr. Chairman.**

Miss COLLINS. My questions were really for Secretary Peña, and I'd like permission to send them to him in writing.

Mr. BORSKI. By all means.

Miss COLLINS. And to commend the National Transportation Safety Board for their quick action on the train wreck in Mobile and, what is it, the Mauvilla—

Dr. LAUBER. The Mauvilla was the vessel involved, yes.

Miss COLLINS. Right, and reading your report on what happened afterwards and the procedures that were put in place I think was commendable. Sometimes the public reads about these tragedies and thinks nothing happens, that it will be business as usual, but I see that you jumped right on it.

One thing that I'm going to write Secretary Peña, and I'd like you to think about it, is that in my district, Detroit, we have the highest international commercial crossings in the country between Windsor and Detroit, and they believe that with NAFTA that traffic may increase 80 percent. Those are ancient bridges and tunnels, and we've developed a whole freeway system since they've been built. The exits of those trucks from the Ambassador Bridge in particular onto our freeway system is almost helter-skelter. It's difficult for myself to navigate, and I've lived there all of my life, and to see truckers coming from Nova Scotia and from upper New York and so forth coming through there has to be very confusing.

I would like you to take a very good look at that and make some suggestions on traffic patterns. I believe that's going to be a great safety factor.

Dr. LAUBER. Congresswoman, we have at the Safety Board addressed the various issues that you mentioned—traffic patterns, the general safety of bridges and their structural soundness, and related areas—in a large number of reports that we've generated at the Safety Board through accident investigation. I think you raise an important point, and that is that for whatever reason might lead to increased traffic on a particular thoroughfare, if there is a significant increase or change, it's important that those responsible for the operation and the safety oversight of that particular highway system or subsystem go back and reassess it to ensure that what we've learned, in many cases from sad example, does not happen again. So your point is well taken.

Miss COLLINS. Yes. The bridges and the tunnels are fine. I refer to their age only to tell you that the surrounding patterns are not fine, because they weren't built at the same time. Thank you.

Thank you, Mr. Chairman.

Mr. BORSKI. The Chair thanks the gentlewoman.

The gentleman from Oklahoma?

Mr. INHOFE. Just one last question, and I'll make this to Dr. Loeb. It seems a shame he came all the way here—

Mr. BORSKI. I think he's very happy about that. [Laughter.]

Mr. INHOFE. I notice in the Administration's budget that there is a cut in the funding of administrative law judges that would have the effect of reducing the number of ALs. Do you feel that you are overstaffed with administrative law judges?

Dr. LOEB. Congressman, I appreciate your generous offer to feed me a question, but I'm going to decline to answer that, because

that's a budgetary issue that's outside of the realm of my responsibility, to be honest with you.

Mr. INHOFE. Dr. Lauber?

Dr. LAUBER. Dr. Loeb would not generally get involved in the research and engineering function that you've addressed, but the question is an important one. I can't respond specifically to your question. I mean, we have general concern, and it's an area that we're constantly reviewing—the caseload, the backlog, and the number of judges who are available to clear that caseload. We can respond with further information on that question if you want us to for the record, but I'm not—

Mr. INHOFE. The reason I was asking is, as you probably know—in fact, I know you know this—I was one of the strongest supporters of keeping that appellate process during this experimental period where it was in the NTSB, and at that time we talked about isn't this going to make for a heavier workload in the future, and it's kind of my recollection that it was, and then I saw this, and it kind of surprised me, and that's why I was asking the question.

Dr. LAUBER. In that regard, I'm unaware at this point that there's been any specific noticeable impact of the process that you've talked about on the caseload. Now, it may be too early for that to have shown up just because of the length of time that it takes for those things to work their way through the system. But at this point, I am not aware that we've had a problem driven by that.

Mr. INHOFE. But it could also be that that appellate process has caused a change in behavior of the FAA and their treatment of these cases, too.

Dr. LAUBER. That is quite possible, though there is significant delay in the system. Sometimes the effects won't show up for a significant period of time after the changes have taken place.

Mr. BORSKI. Dr. Lauber, the Safety Board devotes about two-thirds of its resources to investigating aviation accidents and about one-third to all other modes of transportation combined. Do you think this allocation of your resources is consistent with the relative severity of safety problems in the various modes?

Dr. LAUBER. Well, Mr. Chairman, as I know you're aware, of course, our mandate includes specific requirements to investigate all civil aviation accidents in this country, so that is a requirement that is imposed upon the Safety Board. I think as a general observation, it's fair to say that there are general aviation accidents that we've seen repeated over and over again which don't contain a whole lot of safety information, that there's little new that we learn from those.

However, it's also important to note that in those cases we have a wide range of responses in terms of the degree or the depth of investigation that we conduct, and in those cases where we don't see on the basis of preliminary information that there are significant safety lessons to be learned, we will respond appropriately in doing a very limited field type of investigation that sometimes literally is simply an effort to keep the data base up to date and not much more than that. So we try to tailor our response in fact to the lessons that we believe can be learned, to the extent that we can.

Mr. BORSKI. Can you review for us the adequacy, in your view, of the data available to us on the causes of accidents in the various modes? Which modes have good data on accident casualties and which modes need improvement, in your view?

Dr. LAUBER. Well, there are variations with regard to the uniformity of reporting standards for a variety of reasons. I think it's fair to say that in the aviation system, for example, we have very good data. When we get to some of the other modes, it's sometimes very difficult to get reliable information and data on injuries and fatalities and property damage and causal factors that might be involved. We also have a general problem not just with the direct indications of safety—that is, injuries, fatalities, and so on—but also with some of the baseline data that are required in order to make sense of what these statistics tell us.

It's not possible to take a figure in isolation, such as the number of transportation fatalities, without some notion of the exposure, the number of people exposed and the length of time that they're exposed to the relative risks. So getting baseline data is also frequently a problem. We think that there are efforts under way to improve the quality of the data available, and we're participating and cooperating with those whenever we have an opportunity to do so.

Mr. BORSKI. In 1990, you recommended that the Department require the use of on-board data recorders by the trucking industry to improve compliance with the hours-of-service regulations. The Department has not acted on your recommendation, arguing that the requirement would have cost the industry too much money. Do you stand by your recommendation, and do you have any estimate of the number of lives that may be saved each year by implementing such a requirement?

Dr. LAUBER. No, we were never able to do an analysis with regard to the number of lives that are saved. You have to take a sort of indirect approach to that, and it's difficult to estimate because there's a specific instance where the lack of reliable data can lead you down different paths, depending on which data you end up using. But to the extent that fatigue is a significant cause of incidents or accidents in transportation, obviously the approach that we've advocated could have a potential significant impact. We don't know what those numbers are and how they shake out.

With regard to our proposal, the basic proposal, no, we have not backed off at all on that. We continue to believe that we have to do a better job of enforcing existing hours-of-duty regulations and that one approach to this is through information that might be derived by such recorders. I think we're hopeful in the long run—and we recognize the cost problems that are associated with the technology available, but I think here again technology may offer some hope for some effective approaches in the long run through the development of very low-cost solid-state recorders and other kinds of devices that might well be usable to address the issues that we've discussed. So we continue to support developments in that direction.

Mr. BORSKI. Dr. Lauber, we're going to have to take a break now for a call to the House. I want to thank you for coming, and we have a host of questions left, but perhaps I'll submit them to you

in writing, and if you could respond to us in that way, we'd much appreciate it. Thank you very much for your testimony and the good work you're doing.

Dr. LAUBER. Thank you.

Mr. BORSKI. The subcommittee will stand in recess.

[Recess.]

Mr. BORSKI. Our third witness today is Mr. Kenneth M. Mead, Director of Transportation Issues at the U.S. General Accounting Office here in Washington, D.C., apparently with a host of others.

Mr. Mead and your associates, can I ask you to please rise and raise your right hand?

[Witnesses sworn.]

Mr. BORSKI. Thank you very much. Mr. Mead?

**TESTIMONY OF KENNETH M. MEAD, DIRECTOR, TRANSPORTATION ISSUES, RESOURCES, COMMUNITY, AND ECONOMIC DEVELOPMENT DIVISION, U.S. GENERAL ACCOUNTING OFFICE, ACCOMPANIED BY RON WOOD, FRANK MULVEY, AND ROY JUDY**

Mr. MEAD. Thank you. Let me introduce my colleagues. On my left is Mr. Ron Wood. Ron does most of our work in the rail and truck safety area. To my right is Frank Mulvey, who does most of our competition and economic work. To my far right is Roy Judy, who does a lot of our aviation safety work.

I'd like to summarize my statement, Mr. Chairman. First I'd like to point out that I've been in this area for about seven years, and this is the first hearing that I can recall that covers all the modes of transportation and safety. I think that's a statement about a very positive direction the committee is going in. I do understand the jurisdictional issues, but I think it's appropriate that from time to time we consider the modes as a whole.

Secondly, most of what I will say today will build on what the Secretary of Transportation said, and I'll try to adjust my remarks to deal with some of the points he made.

I would say there are three prongs to my statement today. The first is strengthening the Department's capability to minimize the risk of accidents, to be more proactive and less reactive. The second prong is using better data to strategically target the inspection resources and increase regulatory attention to high risk areas. The third is positioning the Congress and DOT to better assess the safety of each mode and the relative investment made in safety.

The Secretary was correct, safety performance in all modes, using fatalities as the measure, are all improving. There have been marked strides particularly in highways over the decade. Highway fatalities peaked in 1972 at about 55,000, and they're now down to about 40,000.

Mr. Chairman, measuring fatalities are important, but they tell only part of the story. If you apply statistics to this, they represent less than 1 percent of the about seven million accidents that occur annually. But serious injuries, property damage, and other economic impacts also are major factors. Take the Exxon Valdez spill for example. There were no fatalities there, but the damage to the environment and other impacts was around \$3 billion.

There's a demonstrable need for improving data reliability as it relates to accidents, injuries, and property damage. Also, there's not a common definition of what level of property damage must occur before an accident ought to be reported. An example: The Federal Railroad Administration uses \$6,300 while the Coast Guard uses over \$25,000 for commercial vessels. More importantly, even within Highways, there's enormous wide disparity in what the threshold is for reporting an accident and property damage.

It's a very important area, because even though fatalities and the fatality rate are going down in all modes, the number of accidents and the number of injuries can increase. For example: Between 1991 and 1992, the number of automobile fatalities decreased, while the number of accidents in fact increased. So in our view, this is a clear target of opportunity for the Secretary's safety agenda, and it was very encouraging to hear the proactive and aggressive nature of that agenda.

A second action area is the need to establish what the modal safety investment is. If Congress and DOT are to judge the relative safety investment in each mode, they are going to need to know what that investment is today. DOT, in a letter to you, Mr. Chairman, said that it spends about \$2 billion on its safety functions out of a roughly \$37 billion budget. The figure is really much higher. I'll give you some examples of what the current \$2 billion estimate excludes.

It excludes over \$20 billion per year in capital investments for highways and aviation, both of which have a dual safety and efficiency purpose. The recent earthquake in California and the damage done to the highways there I think graphically illustrates the relevance of safety in the capital investment arena. Another example is the windshear detection systems now being procured by FAA that undeniably is safety-related and efficiency-related expense. Air traffic controller salaries that are little over \$2 billion a year is also in that category. They're also excluded. And, finally, for agencies like FRA, RSPA, Coast Guard and FHWA; State inspectors or State police play a major role along with the federal government. The safety investment picture really isn't complete unless you consider these investments as well.

In 1991 Congress, in the ISTEA legislation, established the Bureau of Transportation Statistics to address data matters like these. DOT has been very slow to get the Bureau under way. As Mr. Peña pointed out, DOT is also developing safety measures to respond to the National Performance Review recommendations, but it's clear to us that in the long term, unless BTS is charged with taking a leadership role in this area, the data improvements I mentioned are not likely to happen. What happens at DOT now is there really is no institutional mechanism, short of the personal case-by-case intervention of the Secretary, to make cross-modal considerations happen.

Moving to another matter, we see, and have repeatedly reported on this, major targets of opportunity for improvements in the modes individually and working together in two areas. The first is the need to be proactive in the safety area rather than reactive, and the second is the need to strategically target what are becoming increasingly limited inspection resources. What do I mean by

reactive? I mean the taking of action, regulatory or otherwise, only after a tragedy or accident occurs. In other words, that the accident is the impetus for the taking of action.

If you recall the aging aircraft scare a few years ago that began with Aloha Airlines, NTSB's investigation showed quite clearly the value of proactiveness and what could have been done had the inspection reports been heeded. The most recent Colonial Pipeline spill that occurred last year is an illustration of where proactiveness in the use of a special detection technology may have helped. I don't mean to single out pipelines here or aviation. Our work can call examples from any one of the modes. I don't think any one of the modes is exempt from this point.

I empathize with and respect the difficult position the Secretary is in here, because the name of the game is the prevention of accidents or the minimizing of accidents. It's unlikely we'll ever have a transportation system where risk is zero. So the Secretary has to balance the cost against the preventive value.

Another action item that we've advocated is the development by DOT of what we call precursors or indicators of safety risks. Those are conditions that, if they're left uncorrected, will lead to accidents, fatalities, and injuries. Since we made this recommendation in 1987 in a Department-wide review, the progress has really been limited. An example of an indicator would be the frequency with which an operator or, in some cases, an entire industry is in non-compliance with an important safety rule. If the rule is violated, that would be an indication that that could lead to accidents if it continues to be violated.

We've also found that data on non-compliance with safety rules, even though it's supposed to be collected, often isn't reported in a way that is usable by the agency. I'll give you a couple of examples of where we have real limited data that matters to the Congress. The trucking and longer-combination vehicle areas. DOT has very limited data on how many accidents trucks have, the truck mileage, or even the type of truck that's involved in an accident. It will be most difficult for the Congress to figure out where the routings for the longer-combination vehicle trucks should be allowed if you don't have basic safety data about what kind of trucks are involved in accidents.

I'd like to point out an area where I believe there have been some strides made. FAA now keeps reasonably good data on mid-air collisions and operational errors in the air traffic control system. I'll tell you what that data shows. It shows that mid-air collisions have dropped from 454 in 1990 to 283 just last year. On the other hand, since they're keeping information on operational errors—those areas where planes come a little too close together as a result of the function of the air traffic control system—this data shows slight increases in 1993 from what accrued for the last two or three years. I would expect that FAA will develop a strategy for dealing with this situation, and that obviously will improve the safety of the system.

A final area I'd like to mention deals with the deployment of the inspector work forces. No modal administration will ever have as many inspectors as it would like to do as many inspections as are needed. I could go on and cite all kinds of numbers about what the

universe to be inspected is, but I will not. I think it's almost patently obvious that they can't. That's why they need a strategy, and you need information about compliance with safety regulations in order to devise a strategy to deploy your resources.

RSPA has one, we understand. FRA and FAA are working on one. Interestingly, the systems both agencies are working on have things in common—common computer issues, hardware and software, as well as common methodology issues. But there's no institutional mechanism in DOT to bring the development efforts of the two agencies together. So it's in some ways—perhaps this is a little bit harsh—but somewhat of a catch as catch can.

With that, I'd just like to conclude, Mr. Chairman, by noting a few observations on Secretary Peña's and John Lauber's testimony.

Human factors research, an incredibly important area, needs to be linked better than it is to the R&D budget. It's a good thing that the 2.5 cents is going back to the trust fund. You'd be better off with it going back this year instead of 1995.

Regarding the medical chart that Secretary Peña had up there, I wanted to just toss out one number. DOT is estimating that of the roughly 40,000 deaths every year on our highways, 15,000 of them could be prevented by wearing seat belts, and you'll recall where the arrow was headed on the medical damage chart.

Mr. BORSKI. Excuse me. Could you repeat that?

Mr. MEAD. Yes. DOT is estimating that if people wore seat belts, 15,000 deaths would be prevented each year, and I thought that was a good contextual framework in which to view the Secretary's chart.

Mr. Mineta pointed out that he had a concern about disparities among the modes and do they all make sense. Well, I think some of the disparities probably do make some sense, but there's probably a fair number that don't, and we could sit here all day probably and come up with scores of examples, but I think an important point is DOT is not well positioned right now to figure out which ones do make sense and which ones don't. There is simply no institutional mechanism there.

I think I'll conclude my statement with that.

Mr. BORSKI. All right. Thank you very much, Mr. Mead. Let me ask, in our letter to you last April, we asked about the regulatory standard in each mode. I wonder if you could elaborate on your answer for us. Does the safety standard expected of carriers, operators, and manufacturers in each mode balance risk against cost in a comparable way?

Mr. MEAD. I think each mode is different. Certainly in aviation you have a more stringent standard than you would in some of the other modes. I'd ask Dr. Mulvey here to amplify on that.

Mr. MULVEY. I think it's true that we have spent more money per person injured or more money in terms of a safety payoff in some modes than other modes. It's widely accepted that we spend quite a bit of money on aviation safety, not only the out-of-pocket monies that the DOT counts, but also the other safety expenditures that Mr. Mead alluded to. We still have many, many thousands killed each year on highways, and if we're looking for targets of opportunity, it may very well be that if we increase our expenditures

on travel safety, we may get a bigger bang for the buck, if you like, by spending more in the highway area.

I would want to caution, however, that we're not suggesting at all that monies be transferred between the modes, because part of the reason why we have such a good safety record for some of the modes has been the level of resources we've been willing to commit.

Mr. BORSKI. Again, in our letter last April, we asked you to comment on the appropriateness of our overall transportation safety strategy. Is our level of effort lower in some modes relative to the extent of the safety problem than it is in others, and should we target some modes for higher standards or increased resources?

Mr. MEAD. I thought the strategy the Secretary outlined today for you, Mr. Borski, was quite appropriate if followed through on. I don't think that in the past I've seen a level of proactiveness in the Department's strategy that would be appropriate. I don't mean to say that things have changed in the last year under this Administration. I think the change has been gradual over the last five-year period. I would characterize, frankly, the inspection program at FAA seven years ago as woeful. It was a shell of what it is today. That is not to say it can't be improved, but they have made enormous strides.

Mr. BORSKI. Your testimony today makes a clear message that DOT and the modal administrators need to become more proactive to reduce the likelihood of an accident. What specifically must DOT do in this area?

Mr. MEAD. Well, one important element of the strategy needs to be the development of precursors of risk, and I can take you through each mode and perhaps give you some examples, if you would like.

For example, in passenger trains, I think DOT or Amtrak needs to establish minimal thresholds for pulling passenger trains from service when they're defective, and DOT or Amtrak needs to measure how many of those trains are reaching that threshold, because if there's a lot of trains reaching that threshold, it's an indication of a problem.

In the trucking area it is important to determine what kind of violations are found that involve brakes. DOT should be maintaining some information on that. When the inspector identifies that the braking problems are recurring with a particular operator, that data needs to be synthesized.

Mr. BORSKI. In particular in your testimony, you mentioned the need for safety indicators, precursors of safety risks. If the Department is to be proactive in addressing safety hazards, the use of these safety indicators is clearly essential. Could you give us some examples of the kind of safety indicators the Department might consider to identify safety problems before fatalities occur?

Mr. MEAD. I think that question is closely related to the earlier one, and I just will give some other examples. Where is your source of hazardous material violations? Is the source at the place where the train is loaded or where the truck is loaded, or is the hazardous material violation occurring en route? We've done some work in the rail area that disclosed that many of the violations were occurring at the source. In aviation, FAA should be keeping score on the frequency of brake problems, leaky fuel lines, and compliance with

commuter airline training requirements, to name a few. Just keep track of what our inspectors are finding in key regulatory areas. When they see that there are substantial levels of non-compliance the modal administrations need to address that to reduce the likelihood of accidents.

Mr. BORSKI. Let me yield at this point to the gentleman from New Hampshire, Mr. Zeliff.

Mr. ZELIFF. Thank you, Mr. Chairman.

You mentioned human resources, R&D, and you talked about 2.5 cents going back to the trust fund, and you felt that that was good. Then you follow that up with 40,000 deaths annually and the point that 15,000 of those could be prevented by wearing seat belts. Was there a connection between that statement on the 15,000 people and the 2.5-cent trust fund?

Mr. MEAD. No, but I could certainly draw one.

Mr. ZELIFF. Would you?

Mr. MEAD. I think over the years the Highway Trust Fund is used for safety purposes, NHTSA enforcement, and FHWA enforcement. Over the past few years, the financial condition of the trust fund hasn't been as good as it might be. Part of the reason for that was because not as much revenue as had been forecasted was going into it, and then the 2.5 cents was sent over to the general fund rather than to the trust fund.

Mr. ZELIFF. Followed up by another 4.3, right?

Mr. MEAD. Yes. I think a lot of people in the transportation community were accustomed to seeing gas taxes go into the trust fund. You can authorize any level you want, but if you don't have enough money in the trust fund, it's going to be hard to fully fund it.

Mr. ZELIFF. I agree with you, and I just want to make sure that we're clear on the record. The 15,000 deaths that can be prevented by wearing seat belts, maybe you can comment on the education program that we have presently, and then what else do we need to do? I mean, that's still a big number. What is it that we should be doing that we're not doing?

Mr. WOOD. The 15,000 lives that can be saved annually is a NHTSA estimate. It is based on all front seat occupants wearing safety belts. The Secretary has announced a goal of achieving by 1996 75 percent seat belt usage. A large part of the compliance with seat belt laws rests with the State and local governments, so a large part of education is educating the States and local governments of the desirability of enforcing the seat belt laws and also educating the individuals to wear belts. Seat belt use is a low-cost item for improving safety. Most automobiles in use today have safety belts in them. It's just a matter of getting someone to take the extra 10 seconds to buckle up.

Mr. ZELIFF. Do you think the education program, frankly, is working well now?

Mr. WOOD. I would say compared to other countries, it's not working too well. You can compare to Canada and others, and you can see they have a much greater achievement in the wear rate.

Mr. MEAD. We understand we may be asked by one of the congressional committees to review the current reported level at which people wear seat belts, which is 65 percent, to see if it's being reported correctly. If it's really less than that, we're also being asked

to review the appropriateness of the 75 percent goal and whether it should be perhaps higher in view of what other countries are doing.

Mr. MULVEY. Efforts to increase seat belt usage have included ticketing people for non-compliance or adding to the fine if people are caught speeding or doing something else and were also not wearing their seat belt. It would be an additional violation that they would be charged with. But these have not proven to be all that popular. About 20 years ago—

Mr. ZELIFF. Popular and/or effective?

Mr. MULVEY. They seem to be more effective than they are popular. About 20 years ago there was an attempt at having safety interlock systems where your car would not start unless your seat belt was fastened, but again, too, there was a lot of opposition, and after one year that requirement was rescinded.

Mr. ZELIFF. The Administration seems to be heading in the direction of supporting an independent Federal corporate entity to manage and fund the air traffic control system, and according to proponents, a Government corporation will enable the ATC system to operate more businesslike and overcome certain chronic impediments to good management, such as inflexible personnel rules and burdensome procurement regulations.

However, legitimate questions regarding the safety of an independent ATC system have yet to be answered, and then I guess you also referred to air traffic safety today versus seven years ago and the tremendous improvement, and, frankly, looking at the FAA—well, I'll reserve that comment, but give me your comment on how you see this going and whether that makes sense. Do you support the Administration's support of an independent agency?

Mr. MEAD. I'll try to phrase my response cautiously in view of the fact that we have ongoing work in the area. But the concept, as I understand it, would spin off air traffic control from the rest of FAA, and FAA would somehow retain safety responsibility for the system, as I understand it.

Mr. ZELIFF. I like your word "somehow."

Mr. MEAD. Well, it strikes me, sir, as something of trying to do an operation on a Siamese twin. The air traffic control system is infected with safety considerations, and should be, and it does a pretty good job overall. But I don't understand how the air traffic control corporation would run air traffic control and safety would be run by FAA.

Secondly, I can say categorically that the problem with the modernization program is not currently a procurement problem. The problem there is that the most prestigious firms in the United States are trying to solve the problems with the advanced automation system, which is the heart of the air traffic control system.

A final consideration is, how would you accommodate minority stakeholders in the system—such as general aviation and smaller airports? Of course, there's the consideration of who pays. Where will the money come from?

So these are some of the considerations we're exploring, sir. To me, I guess I do have to ask myself the question of what is exactly the problem we're trying to solve.

Mr. ZELIFF. I'll just make one quick comment, Mr. Chairman, and end it. I just would like to state for the record, that my experience with the FAA and my view of the air traffic safety control system has been outstanding. I can't find too many areas of Government that can be much better. So before we mess up something that works basically well and we try to control a problem and solve a problem that we don't know exists, I just hope that we move, as you say, cautiously or carefully as we move forward in that particular end of it.

Thank you, Mr. Chairman.

Mr. BORSKI. The Chair thanks the gentleman.

The gentleman from Michigan, Mr. Barcia?

Mr. BARCIA. Thank you very much, Mr. Chairman. I'd like to apologize for arriving late. I had a very busy hectic schedule today with constituents in from Michigan. But I would like to make a brief comment about Mr. Mead's comments and the others relative to the adoption by the various States across the Nation involving mandatory seat belt use.

Of course, back in the early 1980s, we passed legislation in Michigan to require the use of seat belts, and insurance companies were very much in favor at that time of the passage of that particular law, and as a matter of fact, it's not a primary offense but a secondary offense. So if a driver is involved in speeding or running a stop sign and are pulled over and don't have a seat belt on, then they can be ticketed.

What we did find out, and I would ask the Department to perhaps try to track some of the data relative to survivors of auto crashes—and, by the way, I did happen to be involved in a head-on collision in 1989, which I had my seat belt on, so I appreciate the importance of seat belts—we found in Michigan that in fact payouts for reconstructive surgery and lengthy hospital stays and long-term care actually exploded as a result of the adoption of the seat belt law in Michigan. While certainly lives were saved, they do not prevent major disabling injuries from being sustained by the drivers.

Now, I'm pleased to see the direction that the Department has taken relative to encouraging use of air bags. I understand that most traffic safety experts will advise that air bags in conjunction with seat belts are really the best way to go. Even though you may save a life, you have massive medical bills and months of reconstructive surgery in some of these instances where it's true someone's life was saved. However, they still will undergo years of therapy, if not lengthy stays in long-term care facilities if they're comatose or whatever. Could you comment briefly on that?

Mr. MEAD. Yes, I think you're right. I mean, I would endorse everything you said. I think it's correct about air bags being used in conjunction with seat belts.

I would like to tie back your points with a point I was making earlier about fatality and injury data. In your explanation of this, you pointed out that you could appreciate this because of the serious injuries that occur from accidents. Injury data in this country is not very good. It could be improved quite a bit when the police officer accurately captures and reports the level of injury. We know about fatalities. They're fairly obvious. But in terms of the work

that NHTSA's doing and FHWA is doing in monitoring seat belts and monitoring the experiences with air bags, it's going to be important that we also have injury data. One of the recommendations I made in my statement is that injury data needs to be improved.

Ron, do you have any comments?

Mr. WOOD. A couple of years ago we issued a major report on the effectiveness of seat belt laws and the compliance with them. One of the key points from all the 2,500 or so studies that have been done over the years is that seat belts save anywhere from 50 to 75 percent of the lives of people that are using them when they're involved in severe crashes. Also, severe injuries are reduced 50 to 75 percent. The medical costs are also much lower. So even with belts on, you have injury but the severity of the injuries are less.

Mr. MULVEY. The benefits from seat belts improved tremendously and eliminated some of those problems you're referring to when we moved to the three-point belts. The lap belts sometimes cause people in serious head-on collisions to accordion and smash their heads against the windshield, and that caused massive head and facial injuries. But the three-point belts help eliminate that, and, of course, air bags take that protection still further.

Mr. BARCIA. Just in the way of a final comment, I would applaud the Department's efforts and just encourage you to continue to do everything you can to educate the public about the need to use those seat belts and also encourage our auto manufacturers to, whenever possible, at the lowest possible price, include the air bags as options as an additional, I think, measure of safety for a head-on collision.

Thank you.

Mr. BORSKI. The Chair thanks the gentleman.

A couple of final questions, if I may, Mr. Mead. You note that reducing the frequency of non-compliance with safety regulations and standards could be one objective of an inspection program. Can you suggest some areas where this non-compliance might be particularly serious, where inspection methods might be changed to improve compliance?

Mr. MEAD. Yes. In the commercial trucking area there are fixed inspection sites and fixed hours of operation for these places. So the truckers are aware of when the inspection stations are open. Although it might not be convenient to have the inspection sites open more randomly and at differing hours and surprise hours, but that would be a compliance strategy that I think would be appropriate. Also using the weigh-in motion techniques.

In aviation, we did some work in the air taxi area and found that some violations went undiscovered by FAA for very extended periods of time, sometimes 12 to 15 months. A lot of air taxis operate at nighttime, but most FAA inspectors work during the day. That's another example where FAA could employ surprise nighttime inspections.

In the Coast Guard, the problem is the need to keep track of what they find. They do a pretty good job of finding things. The inspector writes it down and files it away, and often not a lot is done with that information. We've been pushing the Coast Guard to keep track of what they find.

I gave an example earlier in rail Hazmat. Are the problems at the source, or are they en route? In aviation, we always need to stress more the need for hands-on verification rather than exclusive reliance or heavy reliance on reviewing paperwork.

Those are just a few areas.

Mr. BORSKI. Let me ask, in your testimony on page 2, you state that data associated with transportation accidents are not reported, are incomplete, or are unreliable. We've heard similar comments from many of the transportation professionals we have interviewed in preparation for this hearing. Can you suggest how we can improve the quality of accident data sources such as police accident reports?

Mr. MEAD. Sure. This might be controversial, but most States have different accident reporting forms. The State Police have one form, the local police may even have another, and the States reporting criteria aren't necessarily uniform. So we might start with a uniform reporting form. Providing training on what type of injury has occurred in an accident and how to report it would also help. There are some major efforts under way at DOT, the National Research Council, and the AASHTO organization to do that.

Because a police officer obviously has to focus on the accident and he's not going to be immediately concerned with filling out a form, another thing that can be done is to improve the timeliness of the screening of that form to make sure that it does contain the relevant data. Sometimes the State people that screen the forms don't screen them for months after the accident, when memories have waned and so forth.

Mr. MULVEY. There's been some improvement, by the way, within States with State police using the same reporting forms throughout the State. It used to be different all over the place. Now it's pretty much uniform. But it's not uniform across the country, and comparing results, then, from different States is very, very difficult. So that's another area.

Mr. MEAD. One other item I want to make sure I get on the record here of an area for improvement is what kind of vehicle was involved, what kind of truck was it. As I mentioned earlier it is very different to determine the routings of longer combination vehicles when you do not know the frequency with which these trucks are involved in accidents.

Mr. BORSKI. Very good. Any further questions?

[No response.]

Mr. BORSKI. If not, I have a few more questions, but time doesn't permit me to give them at this point. Perhaps I'll submit them to you, and you could respond back to the subcommittee in writing. We'd appreciate it very much.

Mr. MEAD. I'd be glad to.

Mr. BORSKI. Thank you, Mr. Mead.

Mr. MEAD. Thank you, sir.

Mr. BORSKI. Thank you very kindly for your testimony.

[Whereupon, at 12:39 p.m., the subcommittee adjourned, to reconvene at the call of the Chair.]

PREPARE STATEMENTS SUBMITTED BY WITNESSES

**National  
Transportation  
Safety Board**

Washington, D C 20594

**Safety Information**

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Testimony of

Dr. John K. Lauber

Member, National Transportation Safety Board

before the

Investigations and Oversight Subcommittee

Committee on Public Works and Transportation

House of Representatives

Regarding

Intermodal Transportation Safety

February 10, 1994

Good morning Mr. Chairman and Members of the Subcommittee. I am pleased to represent the National Transportation Safety Board and to participate in your panel's discussion of intermodal safety issues.

The Safety Board has long known that unsafe transportation conditions do not exist in a vacuum. Throughout the years our accident investigations have repeatedly shown that certain safety issues share a commonality throughout the transportation network and, as such, a coordinated approach by modal administrators can be helpful in developing effective programs to correct safety problems. When accidents cross traditional modal boundaries, the expertise of more than one agency may be necessary to resolve the pertinent safety issues identified by our investigations. Therefore, the Safety Board has a separate classification process for those recommendations we issue that affect two or more of the Department of Transportation (DOT) modal administrations.

Today's hearing is of particular interest to the Safety Board and we welcome this opportunity to discuss those safety issues that we believe can be addressed more effectively through a coordinated effort within DOT.

Operator fatigue is one such safety issue that has been a recurrent factor in many Safety Board accident investigations. For example, in January 1988, a west-

bound Conrail freight train collided with an eastbound Conrail freight train near Thompsonstown, Pennsylvania. The engineers and brakemen on both trains were fatally injured. Damage to the trains was estimated at more than \$6 million.

The Safety Board determined that the probable cause of this accident was the sleep-deprived condition of the engineer and other crewmembers of the eastbound freight train, which resulted in their inability to stay awake and alert, and their consequent failure to comply with restrictive signals. Contributing to the failure of the crewmembers were their unpredictable work and rest cycles, their voluntary lack of proper rest before going on duty, and the inadequate alertness and acknowledging devices of the locomotive safety backup systems. The human performance issues involved in this and similar train accidents that occurred in Sugar Valley, Georgia, and Corona, California, are not unique to the railroad industry; they exist in accidents in other transportation modes as well. Operator fatigue was identified as a causal factor in 31 percent of the accidents that the Safety Board investigated for our safety study of heavy truck accidents that were fatal to the driver. Fatigue and excessive workload are also cited as factors in many marine accidents. For example, the groundings of the EXXON VALDEZ in Alaska in March 1989 and the WORLD PRODIGY in Rhode Island in June 1989 were both the result of fatigue.

Prior to the Thompsonstown accident, the Safety Board had issued about 40 safety recommendations to transportation modal administrations, operators, and

associations concerning fatigue, duty time, and hours of service. Collectively, the recommendations addressed many aspects of the fatigue and fitness-for-duty issues, but they constituted uncoordinated and piecemeal efforts directed to various government and industry segments of the transportation community. By the late 1980s, the Safety Board believed that it was time for an aggressive federal program to coordinate and address the problems of fatigue and sleep issues in transportation safety.

On May 12, 1989, the Board issued safety recommendations to the Department of Transportation (DOT) asking it to develop a coordinated research effort and an extensive educational program directed toward all segments of the transportation industry. The recommendations also called for a systematic review and improvement of regulations governing hours of service across all transportation modes.

Nineteen eighty nine also marked the Safety Board's assessment of the effects that drug and alcohol use was having on the safety of the traveling public, the findings of which prompted the issuance of several safety recommendations to the DOT Secretary. Our review found that substance abuse had been particularly evident in rail, highway, marine and, to a much lesser extent, in aviation accidents. In fact, there have been no scheduled air carrier passenger accidents on U.S. registered aircraft attributed to alcohol, and only one -- a commuter accident -- in which the non-flying pilot was found positive for cocaine metabolites.

The Safety Board believed that the problems of alcohol and drug use in transportation should receive the highest level of attention by the DOT. Although commending DOT for its efforts to develop regulations to eliminate drug and alcohol use in transportation, the Safety Board expressed concern about the inconsistent approach taken by DOT in the formulation of those portions of the regulations that addressed drug and alcohol testing of persons involved in accidents. Substantial differences existed at the time among the postaccident/incident sampling and testing requirements for the transportation modes. The Safety Board urged DOT to adopt uniform regulations in this area, and we are aware that final rules regarding drug and alcohol testing were published last week.

All too often, the accidents investigated by the Safety Board cross transportation modal boundaries. The circumstances of the Amtrak accident near Mobile, Alabama, on September 22, 1993, provide a good example of this phenomenon. A barge, lost in fog, entered a bayou and struck a railroad bridge. The resultant contact between the barge and the bridge shifted the bridge and railroad track sufficiently so that the lead Amtrak locomotive struck the girder span leading to the derailment. Forty-seven people were killed in this accident. In May, a towboat pushing an empty hopper barge hit the Judge Seeber Bridge in New Orleans, Louisiana. The impact caused the collapse of the bridge pier and 145 feet of the bridge. One motorist was killed and two others were injured.

The Safety Board conducted public hearings on each of these accidents and the results of those proceedings suggest that renewed efforts are needed by the modal administrations, particularly the Federal Highway Administration (FHWA), the Federal Railroad Administration (FRA), and the U.S. Coast Guard to coordinate their programs in order to prevent such accidents from occurring in the future.

To further illustrate the need for coordinated approaches to safety, we can look at an accident the Safety Board investigated in February 1983. In this case, a passenger car traveling south on Kenilworth Avenue in Cheverly, Maryland, vaulted the approach guardrail leading to the bridge over the Amtrak Northeast Corridor tracks. The car landed on a southbound track and was hit by a passenger train traveling at 107 mph. The locomotive derailed, and the train traveled 3,700 feet before coming to a stop. The driver of the car was killed and 11 of the 50 occupants of the train were injured. The consequences of this accident could have been more severe and the Safety Board urged DOT to direct the FHWA and the FRA to coordinate activities related to the improvement of inadequate traffic safety features on barrier systems of highway bridges over the Northeast Corridor.

The safety of hazardous materials transportation is another area in which the Safety Board has encouraged an intermodal approach to improve safety. Our investigation of an accident involving the transfer of hazardous materials at a multimodal waterfront terminal facility in Deer Park, Texas, in 1987 found that some

modal segments of the distribution operations at the facility were subject to U.S. DOT regulations while others were not. The facility was a terminal for loading and unloading hazardous materials in the marine, rail, motor carrier, and pipeline modes of transportation. As a result of the accident, the Board urged the Secretary of Transportation to establish uniform safety requirements for hazardous materials loading and unloading operations for all the modes.

The area of emergency preparedness and response to accidents, particularly those involving hazardous materials, is yet another area that often requires the expertise and participation of more than one modal administration. On several occasions, the Safety Board has called on various modal administrations to coordinate activity in the development of emergency response procedures. Far too often the Safety Board has found that the lack of a coordinated emergency response has contributed to the severity of the accident.

A tragic accident in San Bernardino, California, in 1989, illustrates this point. On May 12, 1989, a runaway Southern Pacific Transportation Company freight train, traveling in excess of 100 mph, derailed in San Bernardino, California. The entire train was destroyed as a result of the derailment. Seven homes located in the adjacent neighborhood were totally destroyed and four others were extensively damaged. Two of the five crewmembers aboard the train were killed. Two residents who were in their homes at the time of the accident also were killed.

During the clean-up of the derailment, the 14-inch pipeline in the railroad right-of-way was struck by earth-moving equipment. Thirteen days after the derailment, on May 25, 1989, the pipeline ruptured from damage incurred during the railroad cleanup. As a result of the release and ignition of gasoline, two residents were killed and 11 more homes were destroyed. Total damages as a result of the train derailment and pipeline rupture exceeded \$14 million.

As a result of this accident, the Safety Board urged the FRA, in conjunction with the Research and Special Programs Administration (RSPA), to require railroad operators to coordinate with operators of pipelines located on or adjacent to their railroad rights-of-way the development of plans that may impact both the rail and pipeline systems.

The Safety Board has issued several recommendations over the years urging the Federal Aviation Administration (FAA) to develop and implement cockpit resource management training programs for airline employees. This training is designed to enhance crew interaction by focusing on communication skills, teamwork, task allocation, and decision-making and is based on the FAA's recognition that 60 to 80 percent of air carrier accidents have been caused, at least in part, by the failure of the flightcrew to use the resources available to them. The FAA has recognized the value

of such training and has developed an Advanced Qualification Program for airline pilots that includes a requirement that the training be provided to all flightcrew members. The agency has also recognized the benefits of such training for air traffic controllers.

We have encouraged the maritime industry to embrace these concepts and the Safety Board endorses their application to the operation of merchant ships. Providing licensed deck officers with bridge resource management training and embodying the cockpit resource management concept can prevent the crew interaction difficulties evident in recent accidents. As an example, the Safety Board determined that a factor in the grounding of the QE2 on August 7, 1992, was the failure by the pilot, master, and watch officers to discuss and agree on a navigation plan for departing Vineyard Sound and to maintain situational awareness after an unplanned course change. The Coast Guard has advised us that it is aggressively seeking changes through the International Maritime Organization to comply with the intent of the bridge resource management training recommendations.

On a different level, technological advances and the approaches developed to resolve safety problems in one transportation mode have been found to have application in other transit modes and the Safety Board has encouraged a cooperative exchange of information in these areas. For instance, the Global Positioning System (GPS) has significant potential for use in modes of transportation other than just aviation. Through augmentation by land-based stations, GPS offers a potentially

convenient way to determine marine vessel positions accurately 24 hours a day. Vessel positions determined by GPS could be transmitted ashore to a vessel traffic center (VTC).

As this panel recalls, in our report on the EXXON VALDEZ accident, we noted that such a system could enable the VTC at Valdez, Alaska, to monitor accurately the movements of tankships throughout Prince William Sound and the Safety Board encouraged its potential use. We are aware that efforts have been underway in several countries to integrate radar and GPS navigational data with electronic versions of navigational charts in order to provide mariners with a single navigational monitor that accurately tracks and displays the position of their vessel and others around them. The U.S. effort to develop and evaluate the electronic chart and display information system (ECDIS) was started several years ago. The U.S. ECDIS Test-Bed Project, coordinated by the Woods Hole Oceanographic Institute, continues its research program to develop a system that not only meets domestic requirements, but also conforms to the ECDIS Provisional Performance Standards adopted by the International Maritime Organization in 1989.

A joint Departments of Defense and Transportation task force is examining the operational, technical, and institutional implications of increased civilian use of the

GPS. The Safety Board believes that the implications of GPS, as it relates to improving transportation safety, merit interagency attention by all DOT modal administrations.

Data collection is one more area in which the Safety Board has urged more coordination. The Safety Board's study in 1993 on recreational boating safety found problems associated with the submission of fatal accident data. These problems suggested to the Safety Board that the Coast Guard should revamp and standardize the accident reporting system. The Board believes that a standardized system, similar to the National Highway Traffic Safety Administration's Fatal Accident Reporting System (FARS), would improve the quality and usefulness of reported data. The Board has recommended that the Coast Guard develop a three-level report form and corresponding data files that address the accident, the vessel(s), and the occupants. All three levels are just as important in understanding fatal recreational boating accidents as they are in fatal motor vehicle accidents. The Coast Guard has acknowledged shortcomings in its existing system and plans to revise procedures for the submission of fatal accident data.

Coordination and exchange of information among the modal administrations in the past has been somewhat sporadic and in some instances nonexistent. In the 1980s, there was little cooperation between the Federal Aviation Administration and the National Highway Traffic Safety Administration regarding the certification of child

safety seats for use in aviation. Not until the Safety Board recommended that the Secretary of Transportation become involved did any coordinated activity on the issue take place. Similarly, there was minimal coordinated activity on the development of regulations regarding alcohol and drug testing until Congress passed the Omnibus Transportation Employee Testing Act of 1991, which then accelerated coordination between the modal administrations.

This lack of coordinated activity may stem, in part, from the many differences that exist in the modes in terms of their historical evolution. Regulations for some transportation modes like railroads and pipelines evolved from industry-established standards while on the other hand, aviation and motor vehicle regulations developed far more differently. This may partially account for the reluctance to coordinate regulatory changes. The Safety Board is not suggesting that all regulations should or can be made to be consistent among the modes. We do know, as discussed above, that there are safety issues common to all transportation modes that warrant a coordinated and consistent approach to their resolution.

Despite the foregoing, in the last few years, the Safety Board has witnessed a greater degree of cooperation and communication among the various modal administrations. The DOT has taken positive steps to coordinate and communicate in the area of human fatigue research. In March 1991, the DOT established a Human Factors Coordinating Committee with representatives from all the modal administrations. Specific research projects on fatigue

are underway in each modal agency, and the results of these projects are beginning to be disseminated to the respective industry. Additionally, the committee is exploring the potential for a jointly funded research project to develop methodologies to measure operator performance in all transportation modes.

Further, efforts by the DOT in the last two to three years have resulted in several steps to encourage intermodal discussions of data requirements and data uses. The Federal Interagency Transportation Statistics Committee (FITSC) was established by the Secretary in November 1990. This committee has provided for periodic exchanges of information among DOT modal administrations and other federal agencies, including the Safety Board. Although these efforts hold the promise for continued cooperation and coordination, the Safety Board remains concerned that sufficient emphasis has yet to be placed on this issue.

The recent creation of the Bureau of Transportation Statistics, as provided for by Congress in the Intermodal Surface Transportation Efficiency Act (ISTEA), is also encouraging. This Bureau and the recently created Office of Intermodalism in the Office of the Secretary of Transportation should facilitate transportation data collection and planning. However, once again a focus will be needed on data collection for the purpose of evaluating the safety of the modes and coordinating these activities with those of the modal administrations.

The Safety Board is pleased with the efforts to increase coordination and communication in these particular areas. Yet the recent accidents involving collisions with bridges discussed earlier suggest that more can be done intermodally.

The Safety Board specifically continues to be concerned that postaccident testing for alcohol and drugs is not consistent across the modes. Human factors research on operator performance and crew coordination deserves continued cooperation and coordination among the modal administrations. The ramifications of GPS may find beneficial applications in several modes of transportation, and thus should be monitored at the Department level. The transportation of hazardous materials and emergency responses to accidents, particularly those involving hazardous materials, remain intermodal issues that warrant attention.

Standards for fire resistant/flame retardant materials in vehicles are another area that merits the attention of all the modal administrations. The Safety Board has addressed this issue repeatedly with respect to school buses, rail rapid transit cars, airplanes, and recently in passenger cruise ships. The Board is aware that the Interagency Fire and Materials Working Group, involving 25 government agencies, has been formed to share information and data on composite materials of interest. While pleased with the formation of this working group, the Safety Board still believes that it would be beneficial for an intermodal group to address fire resistant materials for all the modes.

The Safety Board will continue to address these issues in our accident investigations and safety studies and to take systemic looks at safety problems. We believe the Department of Transportation can do the same.

That concludes my remarks and I would be pleased to answer any questions you may have.

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GAO

United States General Accounting Office

Testimony

Before the Subcommittee on Investigations and  
Oversight, Committee on Public Works and Transportation,  
House of Representatives

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For Release on Delivery  
Expected at  
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Thursday  
February 10, 1994

TRANSPORTATION  
SAFETY

Opportunities for Enhancing  
Safety Across Modes

Statement of Kenneth M. Mead,  
Director, Transportation Issues,  
Resources, Community, and Economic  
Development Division



Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to testify on the Department of Transportation's (DOT) initiatives for comparing safety across transportation modes.<sup>1</sup> Specifically, and in response to the Subcommittee's interest, we reviewed some of the measures of safety often used to compare the modes, the limitations in making such safety comparisons, and the way that each mode and DOT assess safety. Secretary of Transportation Federico Peña, as well as his predecessors, has placed safety among the Department's top priorities and for a good reason: in 1992 about 47,000 people were killed in this country in transportation-related accidents. According to DOT, motor vehicle crashes in 1990 alone cost the United States at least \$137 billion in lost income, property damage, medical, and other expenses.

The information presented here is based on issues raised in our general management review of DOT, reports that we have issued over the past few years related to transportation safety, many for this Subcommittee, and information provided by DOT related to cross-modal safety comparisons. (See app. IV for related reports and testimonies.) Our testimony today will make the following points:

- The safety of the modes of transportation is usually assessed on the basis of the number of fatalities that occur each year. The overwhelming majority, almost 95 percent, of all transportation-related fatalities are associated with travel on the nation's streets and highways. Transportation safety performance is generally

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<sup>1</sup>DOT organizations with safety missions include the Federal Aviation Administration, Federal Highway Administration, Federal Railroad Administration, National Highway Traffic Safety Administration, Research and Special Programs Administration, and the U. S. Coast Guard.

evaluated by comparing the number of fatalities with the volume of traffic so that safety is expressed as a rate, such as fatalities per passenger mile or per ton mile. Fatality rates for transportation provided by commercial carriers--the airlines, Amtrak, mass transit, and intercity bus companies--are considerably lower than fatality rates for the private travel modes--automobiles and general aviation. Notwithstanding differences in modal safety performances, a common thread exists among the modes--performance is improving.

- Passenger miles or ton miles are output measures that take into account the effect of differences in the volume of traffic and travel on safety. But other measures, such as fatalities per hour of exposure or accidents per vehicle trip, are also reasonable measures of transportation safety. Changing the unit of exposure can dramatically affect the relative performance of the modes. For example, the fatality rate for air travel is much lower than that for interstate automobile travel. But, if they are measured on the basis of hours of exposure, the difference narrows considerably. Regardless of how modal safety is measured, it is important to limit modal comparisons to instances where the modes are conceivable substitutes for each other.
- Although fatalities represent an ultimate failure in our transportation system, they tell only part of the story. First, fatalities occur in less than 1 percent of the roughly 7 million annual transportation accidents. In addition to the costs associated with the loss of life, costs from injuries, property damage, and other such economic impacts as lost commercial opportunities occur. Second, data on the extent of injuries and property damage associated with transportation accidents are often not

reported, are incomplete, or are unreliable. Furthermore, each mode has different thresholds for reporting property damage. Third, safety performance measures should take into account the purpose of the trip or trip length if comparisons are to have operational significance. Finally, it is unlikely that any one safety measurement can be applied across all transportation modes.

- Out of a total budget of about \$37 billion, DOT, using its definition of what is exclusively a safety function, estimates that about \$1.9 billion was for safety programs in fiscal year 1993. However, assessing the value of public investment in transportation safety is problematic for a number of reasons. Because they are not required to do so, neither DOT nor the individual modal administrations maintain data on the total funding and staffing devoted solely to safety. In addition, for some of the modes, the safety role is shared between federal, state, and local governments. Data on state, local, and private sector investment in transportation safety are scattered and without such information, estimates of the effectiveness of safety investments are difficult to make. Furthermore, the modal administrations do not categorize as safety those programs that have the dual mission of safety and efficiency.
- DOT's Bureau of Transportation Statistics and the modal administrations have made limited progress in developing transportation-related safety indicators. In December 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) established the Bureau and charged it with numerous responsibilities, including the development of performance indicators for the national transportation system. The Bureau has not yet developed such indicators. Each of the modal administrations has been concurrently developing

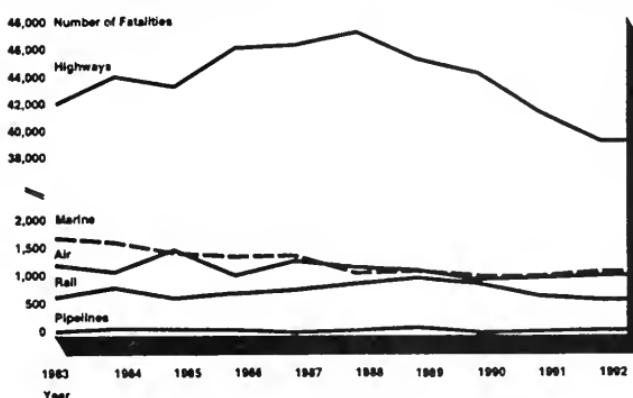
safety indicators within the framework of its responsibility. In our opinion, the Bureau can play an important leadership role in ensuring that the modal administrations benefit from sharing safety work that has been done and ensure that safety is incorporated in DOT's performance indicators.

I will now discuss these issues in greater detail.

MODAL ADMINISTRATIONS COLLECT  
AND ANALYZE FATALITY STATISTICS

Each modal administration collects and analyzes fatality statistics for its mode of transportation. Fatality data between fiscal years 1983 and 1992 show that most fatalities occur on the nation's streets and highways. During this period, highway fatalities averaged about 44,000 annually and represented about 94 percent of the about 47,000 fatalities that occurred on average for all modes combined. On average, marine fatalities (primarily recreational boating) numbered 1,262, aviation fatalities (primarily general aviation aircraft) numbered 1,128, railroad fatalities numbered 636, and pipeline fatalities numbered 22. Figure 1 shows the number of fatalities resulting from accidents by transportation mode for fiscal years 1983 through 1992.

Figure 1.: Fatalities by Mode, 1983-92

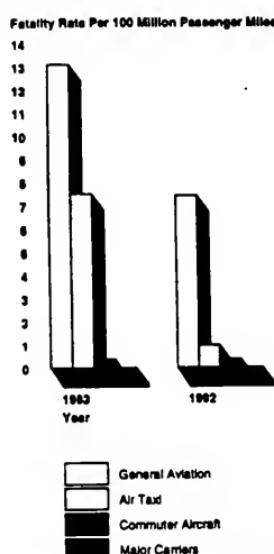


The average annual number of fatalities by mode for the time period.

Pipelines	22
Rail	638
Air	1,128
Marine	1,262
Highways	44,116

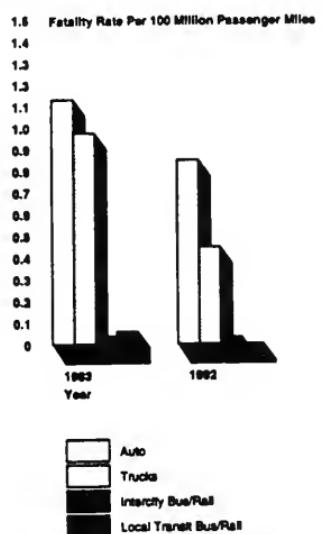
Fatalities are often expressed as a rate, such as fatalities per passenger mile, vehicle mile, or ton mile. According to DOT statistics, in 1991, the fatality rate for automobiles was 0.848 per 100 million passenger miles, compared with 0.446 for heavy trucks, 0.006 for commercial air carriers, and 0.022 for intercity and commuter rail. Fatality rates for transportation provided by commercial carriers--the airlines, Amtrak, mass transit, and intercity bus companies--are considerably lower than fatality rates for the private travel modes--automobile and general aviation. Notwithstanding differences in modal safety performances, a common thread among the modes is that performance is improving. Figure 2 shows the trend in fatality rates per 100 million passenger miles for the types of aviation operations and figure 3 shows the trend for various surface transportation modes over the period 1983-92.

Figure 2. Fatality Rate by Aviation Type,  
1983 and 1992



Note: In 1983, the fatality rate for major carriers was .005 and in 1992 was .006; therefore, these values do not appear in this figure.

Figure 3. Surface Transportation Fatality Rate, 1983 and 1992



Note: Local transit bus/rail data for 1992 are not available

Although fatality data are readily available, they are not by themselves sufficient for comparing safety among modes. For example, if 500 people drove an average of 100 miles each in 1 day and 5 people were killed, the fatality rate would be 1 per 10,000 passenger miles. Similarly, if 500 people flew an average of 1,000 miles in 1 day and 5 people were killed, the fatality rate would be 1 per 100,000 passenger miles, or 10 times less. Therefore, even though the number of fatalities is the same, another perspective of risk can be gained through the use of another measure, in this case, fatalities per passenger mile.

Another measure is fatalities per hour of exposure. Exposure hours is the amount of time that the occupant is in the vehicle and exposed to the risk of an accident. Many of the modes currently do not collect this data, however, using this alternative measure of risk can dramatically affect the relative performance of the modes. For example, the fatality rate for air travel is much lower than that for interstate auto travel. But if they are measured on the basis of hours of exposure, the difference narrows considerably, because an airplane generates several times as many miles per hour as an automobile. Regardless of how modal safety is measured, it is important to limit modal comparisons to instances where the modes are conceivable substitutes for each other.

CURRENT MEASURES FOR ASSESSING SAFETY RISK HAVE  
LIMITED USE FOR CROSS-MODAL COMPARISONS

Fatality and fatal accident rates tell only part of the transportation safety story, and they have their limits for comparing safety across modes. First, fatalities occur in less than 1 percent of the roughly 7 million annual transportation accidents. Also, for some modes, especially aviation, the likelihood of an accident is dependent on the number of takeoffs and landings, where most of the accidents occur, rather than the number of passenger or plane miles flown.

Second, data on the extent of injuries and related hospital costs and property damage associated with transportation accidents are incomplete. For example, in 1989, we reported that the Federal Railroad Administration (FRA) had little assurance that its injury and accident database is reliable because the railroads were not reporting accurately or completely.<sup>2</sup> Four of five railroads that we reviewed reported 8,977 injuries, 968 accidents, and over \$73 million in damages to railroad equipment in 1987. On the basis of our analysis of 521 unreported injuries and 532 unreported accidents, we found that an additional 61 injuries and 52 accidents met established reporting criteria and should have been reported to FRA. Also, FRA's data showed that the railroads reported 2,176 missed workdays associated with 156 injuries. Our review of railroad records for the 156 injuries showed that employees actually missed 8,023 workdays, or 269 percent more than that reported. Furthermore, of the 171 accident cases that we analyzed, the estimated cost of damages due to train accidents was understated by 52 percent, or \$3.5 million. FRA is attempting to improve railroad accident and injury reporting.

One problem in gathering reliable data is that most of the information reported originates at the scene of the accident and neither the full extent of the injury nor the dollar cost of property damage is readily apparent. Although they may be appropriate for each mode, the modal administrations have different reporting thresholds and therefore the data collected and reported are not fully comparable. For example, for accidents involving property only, RSPA requires the industry to report natural gas pipeline accidents when property damage is in excess of \$50,000 while the Coast Guard requires reports when property damage is at least \$500 (for recreational boating accidents). Appendix I

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<sup>2</sup>Railroad Safety: FRA Needs to Correct Deficiencies in Reporting Injuries and Accidents (GAO/RCED-89-109, Apr. 5, 1989).

provides information showing the differences in reporting thresholds for each modal administration.

Third, safety performance measures must take into account the purpose of the trip or trip length if comparisons are to have operational significance. For example, local trips of very short distances, such as work and shopping trips, are not meaningful to aviation; and except for some choice of transit in selected markets, such as bus, the automobile is the only mode available. Also, trips of under 200 miles largely exclude commercial aviation as a choice. Conversely, trips of over 600 miles largely exclude the automobile or bus as meaningful alternatives. Therefore, it is not useful to compare the safety performance of a 1,000-mile airplane trip with that of a 25-mile commute via mass transit since the two are not substitutes for each other.

Collecting data to support common measures is not without cost; this is an expense that could extend beyond the federal level. According to DOT officials, depending on the measure or set of measures selected for assessing safety, the modal administrations, state and local governments, and industries regulated would be affected. The modal administrations would likely have to implement new data collection requirements, acquire new computers and software, and apply additional staff. State and local governments would also have to meet any new administrative requirements for collecting and reporting data, training staff, and possibly hiring additional staff. The industries might be affected because of the potential requirement to provide data that they may not now collect. These DOT officials said that the Department has to determine what safety measures to use and once this is done, DOT will be in a better position to determine the impacts on the modal administrations, state and local governments, and industry as well as administrative and implementation costs in light of the benefits to be derived.

Finally, we recognize that it is unlikely that any one safety measurement can be applied across all transportation modes and that challenges exist in developing performance indicators useful for cross-modal comparisons. For example, it would not be useful to include marine fatalities in a measure that is based on fatalities per passenger mile because most marine fatalities result from recreational boating accidents that are not a function of miles traveled. As an indication of these challenges, we have identified some of the pros and cons of implementing some measures in appendix II.

DOT'S LACKS DATA TO ASSESS THE  
TOTAL INVESTMENT IN SAFETY

In response to an inquiry by this Subcommittee and under its definition of what is exclusively a safety function, DOT estimates that about \$1.9 billion of the Department's almost \$37 billion fiscal year 1993 budget was allocated to safety programs. However, assessing the value of public investment in transportation safety is problematic for a number of reasons.

For example, the \$1.9 billion does not include all safety-related expenditures because some activities that are not performed strictly for safety reasons have important safety components and consequences. Also, each modal administration has different responsibilities that result in different definitions of safety activities. To illustrate, FAA has regulatory responsibility for the entire aviation industry, including developing aviation standards; certifying aircraft as airworthy; licensing pilots, crews, and mechanics; inspecting aircraft maintenance and operations; and providing airport security. Accordingly, FAA used about \$616 million in fiscal year 1993 to perform these functions. FAA does not include in its safety costs funding for programs that are nonregulatory but have a dual-mission--safety and efficiency. For example, FAA does not include the \$3 billion in operations

costs associated with the air traffic control and maintenance technician work forces or that portion of the \$2 billion Airport Improvement Program used by airports to acquire firefighting and rescue equipment in its estimates of safety expenses. Nor does FAA include that portion of the \$32.8 billion Capital Investment Plan that is vital to aviation safety, such as the Terminal Doppler Weather Radar System--a \$351 million program that provides alerts of hazardous weather conditions in terminal areas and alerts of changing wind conditions that influence runway usage.

Conversely, other modal administrations--FRA, the Federal Highway Administration (FHWA), the National Highway Traffic Safety Administration, the Research and Special Programs Administration, and the Coast Guard share regulatory responsibility with the states. Each of these modal administrations has a cadre of federal inspectors or enforcement officials complemented by state or industry inspectors/enforcement officials to ensure adherence to federal requirements. For the most part, these administrations do not capture information on the resources (staffing and funding) that the states and local governments devote to safety.

FHWA is a good example. FHWA regulates commercial motor carriers, vehicles, and drivers. The agency provides grants to the states for motor carrier- and highway-related safety programs, highway safety research and development, and enforcement activities. The agency used about \$127 million for fiscal year 1993 for these safety programs. However, FHWA does not know the amount of investment that the states and local governments make to implement highway safety programs. For example, the state and local governments do not break out from their other duties the amount of time and related funding spent by police officers to enforce transportation safety laws. Also, FHWA does not include the portion of the \$16 billion it provided on average to states between fiscal years 1989 and 1993 for such functions as highway construction and maintenance where safety is an important by-

product, such as repairing highway potholes that will lessen the likelihood of tire blowouts and related accidents or strengthening freeways and bridges to meet seismic requirements. FHWA Appendix III shows the differences in modal administrations safety strategies, their regulatory responsibilities, and the number of federal and state safety inspectors and enforcement officials.

BUREAU OF TRANSPORTATION STATISTICS AND MODAL ADMINISTRATIONS HAVE MADE LIMITED PROGRESS IN DEVELOPING PERFORMANCE INDICATORS

The Bureau of Transportation Statistics has made limited progress in developing performance indicators for the nation's transportation system. In December 1991, ISTEA established the Bureau and made it responsible for implementing a long-term data collection program that includes developing indicators for the national transportation system through a cooperative effort with the modal administrations, the states, and other federal agencies. The Bureau began operations in December 1992. Since that time, it has functioned with two analysts and a deputy director who primarily focused on developing the Bureau's first annual report due to the Congress on January 1, 1994. The report is currently being printed and is expected to be released shortly. In December 1993, the President nominated a director who is awaiting confirmation.

In addition to ISTEA's requirements, the Vice President's National Performance Review (NPR) recommended that DOT develop common governmentwide measures of transportation safety. The Secretary of Transportation in September 1993 tasked the Office of Transportation Regulatory Affairs to develop an implementation plan to respond to the NPR recommendation. This office formed a committee comprising modal and other departmental officials, including a member from the Bureau of Transportation Statistics, to address this issue. The Bureau is represented at committee meetings by a Volpe National Transportation Systems Center

official, who is working under contract with the Bureau. According to Bureau officials, the involvement with the committee's effort will help them develop performance indicators. At the present time, the committee expects to recommend governmentwide safety measures by October 1994.

Governmentwide safety measures should supplement, but not replace, predictors of safety problems that are unique to the individual modes of transportation. As we recommended in our management review of DOT and in numerous reports and testimonies, the individual modes should establish precursors of safety risk--that is, conditions or circumstances that, if left uncorrected, lead to accidents.<sup>3</sup> The ultimate goal of DOT's safety programs is to prevent accidents and their consequences: death, injury, and property damage. DOT has used accident rates to set program goals and assess overall performance. We previously reported that, in most instances, accident rates, especially in the rail and aviation areas, do not provide the most reliable basis on which to target inspection resources because (1) once the accident occurs, it is too late to prevent it and (2) accidents occur too infrequently to be valid indicators of all safety problems.

A different objective for inspection programs could be to reduce the frequency of noncompliance with safety regulations and standards. Defining the objective this way provides a direct link between the work that inspectors do and the results they can achieve. Monitoring performance in meeting the objective, in turn, provides more timely data to identify safety problems and direct resources at high-risk conditions. We have recommended that FAA and FRA develop risk-assessment measures for targeting their

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<sup>3</sup>Department of Transportation: Enhancing Policy and Program Effectiveness Through Improved Management (GAO/RCED-87-3, Apr. 13, 1987).

resources toward those areas needing the most attention.<sup>4</sup> FAA and FRA are currently developing risk-assessment systems.

Over the last several years, the modal administrations have been developing safety performance measures and predictors of safety problems (safety indicators). In August 1992, we reported that progress on FAA's Safety Indicators Program has been slow.<sup>5</sup> After spending 4 years and more than \$7 million on the Safety Indicator Program, FAA had made little progress in developing a consistent set of air safety measures and the supporting computer capability to (1) present the state of aviation safety and (2) support decisions on potential changes of safety activities. FAA subsequently convened a task force composed of users to develop a set of indicators and developed a plan with scheduled milestones that outlined the respective responsibilities of participating offices. FAA currently uses some aviation safety program performance measurements that include assessing the frequency of near mid-air collisions and pilot deviations. We have not reviewed other modes' progress in developing their safety indicators.

#### CONCLUSIONS

DOT's mission is to keep the movement of people and goods flowing efficiently, economically, and safely. DOT recognizes that some level of risk is involved with transportation and its strategy is to take every feasible opportunity to improve safety. In carrying out this mission, DOT relies on the individual modal administrations, in conjunction with the industries regulated, to ensure the safety of the nation's travelers. To varying degrees,

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'Aviation Safety: Problems Persist in FAA's Inspection Program  
(GAO/RCED-92-14, Nov. 20, 1991) and Railroad Safety: New Approach Needed for Effective FRA Safety Inspection Program  
(GAO/RCED-90-194, July 31, 1990).

'Aviation Safety: Progress on FAA Safety Indicators Program Slow and Challenges Remain (GAO/IMTEC-92-57, Aug. 31, 1992).

the modes establish standards and performance criteria for vehicle manufacturers, license service providers, and invest in improving safety of the transportation infrastructure. The modal administrations will probably never have enough staffing resources to cover the full breadth of their responsibilities. Therefore, much of the safety responsibility is through industry self policing; the oversight is shared among the federal, state, and local governments. Although the modal administrations attempt to identify potential safety problems before they lead to serious accidents, for the most part, the agencies continue to be reactive and either lack or do not use available information to effectively oversee their programs and utilize their resources.

Since the modal administrations will never have enough resources to carry out their activities, it is imperative that DOT have the best possible resource utilization at the mode level before the Department can effectively compare resource utilization and application across modes. Although FAA and FRA are developing systems to target their inspection resources at areas that present the greatest risk, it is unclear that the agencies are coordinating on these efforts or sharing their experience with other modal administrations. In addition, for these efforts to be effective, the modal administrations must either develop or use the wide range of information they collect. One particularly important element that the modes must address is the reliability of inspection data, including the severity of findings and the extent to which industry takes corrective actions.

Although recent trends are encouraging (the fatality rate continues its decade long downward trend and the absolute number of deaths is declining), fatalities are not the only basis on which to compare safety among modes. Although other measures exist, they too have limitations for cross-modal safety comparisons. These limitations include the lack of common measurement criteria, inconsistent data collection and reporting, lack of common

definitions of accidents, different safety strategies/objectives, and different regulatory structures.

Currently, it is difficult to identify and sum up all the public and private investment in transportation safety. For example, DOT does not include the costs of programs with a dual mission--safety and efficiency--in its safety program costs. Furthermore, DOT does not capture the funding that the state and local governments devote to safety. Knowing these costs would help (1) decisionmakers to ascertain the total federal, state, and local investment in safety and (2) DOT to make more informed decisions about how to allocate scarce federal funds among the various modes. In addition, information on relative safety performance can be used to help assess the investment in transportation safety. Better safety performance data, when combined with more complete data on our national investment in transportation safety, can help identify targets of opportunity where additional resources devoted to improving travel safety are likely to yield the greatest payoff.

ISTEA assigned the Bureau of Transportation Statistics with the responsibility to develop transportation performance indicators; NPR recommended that DOT develop governmentwide safety measures. Since the Bureau has not yet responded to ISTEAs requirements, it has the opportunity to learn from what has already been done by the modal administrations, who have been developing safety indicators. The Bureau can also ensure that safety becomes an integral component of DOT's overall performance indicators. This will encompass remedying data limitations; determining the potential impacts on the modes, state and local governments, and the industries they regulate; and assessing the benefits of implementing one or a series of safety measures relative to their impacts.

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Mr. Chairman, this concludes my statement. I will be happy to respond to any questions at this time.

## APPENDIX I

## APPENDIX I

DIFFERENCES AMONG MODAL ADMINISTRATIONS  
ACCIDENT REPORTING FOR PROPERTY DAMAGE ONLY

Modal Administration	Reporting Threshold
Federal Aviation Administration (FAA)	Excess of \$25,000 damage to property other than the aircraft. <sup>6</sup>
Federal Highway Administration (FHWA) [Commercial trucks and buses]	None (Report made if vehicle is towed away.)
Federal Railroad Administration (FRA)	Excess of \$6,300 in damages to railroad on-track equipment, signals, track, track structures, and roadbed. <sup>7</sup>
National Highway Traffic Safety Administration (NHTSA)	No reporting requirement for individual accidents.
Research and Special Programs Administration (RSPA)	
Natural gas pipelines	Excess of \$50,000
Hazardous liquid or carbon dioxide pipelines	Excess of \$5,000
Coast Guard	
Vessels	Excess of \$25,000
Recreational boating	Excess of \$500

<sup>6</sup>FAA uses the National Transportation Safety Board's (NTSB) regulations for reporting aviation accidents and property damage.

<sup>7</sup>NTSB has a higher threshold for reporting railroad accidents.

## APPENDIX II

## APPENDIX II

PROS AND CONS OF SOME MEASURES OF SAFETY RISK

Measure	Pros	Cons	Limitations
Fatalities per passenger mile	Provides common basis for assessing passenger risk using distance criteria.	Eliminates cargo/freight transportation from the analysis.	FAA collects data for flight hours and departures. Most accidents occur during takeoffs and landings and are not a function of distance flown. FHWA and NHTSA measure vehicle miles and use estimates of vehicle occupancy. Pipelines do not transport passengers. The Coast Guard does not collect data on the number of passengers carried or distance traveled (nautical miles).
Fatalities per ton mile	Provides common basis for assessing cargo/freight risk using distance criteria.	Eliminates passengers from the analysis.	FAA collects data on flight hours and departures. Modes handle different types of freight. Aviation handles high time value goods, rail handles bulk items, and trucking is somewhere between FHWA and NHTSA measure vehicle miles but do not collect data on freight carried. The Coast Guard does not collect data on tons carried or distance traveled (nautical miles).
Fatalities per vehicle mile	Provides common basis for assessing the risk per vehicle relative to the distance traveled.	Does not allow for differences in passenger and cargo or account for the number of vehicle occupants.	FAA collects data on flight hours and departures. Most accidents occur during takeoffs and landings and not a function of distance flown. The Coast Guard does not collect data on distance traveled (nautical miles).
Fatalities per exposure hours	Provides common basis for measuring the length of time exposed to the mode.	Does not allow for differences between passengers and cargo. Could send wrong message that speeding reduces the chance of being killed.	FRA collects data on passenger and ton miles but not on hours of travel. The Coast Guard does not collect data on hours traveled. FHWA and NHTSA do not collect data on hours driven.

## COMPARISON OF MODAL REGULATORY RESPONSIBILITIES

Characteristic	FRA	FHWA	FRA	NHTSA	RSRA	Coast Guard
Safety objective	Ensure a safe National Aerospace system through regulatory actions and specific goals of reducing general aviation accidents, operational errors, near mid-air collisions, and pilot deviation incidents.	Reduce the fatality rate by an average of 5 percent annually by developing and implementing safety management systems to address roadway, vehicle, and highway travelers' safety.	Improve the effectiveness and timeliness of inspections.	Increase safety belt use to 75 percent and reduce the involvement of alcohol in fatal accidents to less than 43 percent by 1996.	Protect the people and the environment of the United States through a comprehensive pipeline safety program by developing, issuing, and enforcing minimum pipeline regulations.	Minimize personal injury and property damage on nation's waterways; maintain a rate of fewer than 5 fatalities per 100,000 boat.
Who or what regulated	Air carriers, commuter airlines, air taxis, general aviation, repair stations.	Commercial carriers - trucks and buses - in interstate commerce.	Railroad carriers and shippers.	New motor vehicles and vehicle-related equipment; state driver and vehicle programs are influenced through NHTSA grants.	Gas and hazardous liquid pipeline operators.	Ports, shore-side facilities, and commercial recreational vessels on U.S. water as well as recreational boating manufacturers.

## APPENDIX III

## APPENDIX III.

Characteristic	Modal Administration					Coast Guard
	FRA	FHWA	FRA	NHTSA	RSPA	
Number of components regulated	192,000 general aviation aircraft, 7,100 scheduled commercial aircraft, 10,500 nonscheduled commercial aircraft, 692,000 pilots, 650 pilot training schools, 190 maintenance schools, and 4,700 repair stations.	250,000 interstate motor carriers, 6.5 million commercial drivers.	635 railroads, 18,000 locomotives, 1.2 million freight cars, 200,000 miles of track.	Indirect responsibility over operators; billions of vehicle-related equipment such as tires, brake components, headlights, child safety seats, and motorcycle helmets.	55,000 operators, 1.8 million miles of pipeline.	96,000 aids; 11 vessels, 70,000 lbs., 4,000 waterfront facilities, 11 million boaters, 16,1 million boats.
Number of federal inspectors and/or enforcement staff	2,500 safety inspectors, 848 aircraft certification inspectors, and 852 security inspectors.	350	518	100	22	416
Number of state inspectors and enforcement staff	0	5,200 full or part-time inspectors.	127	Varies by state; includes some state and local police activities.	220	Coast Guard could not provide.

RELATED GAO PRODUCTSAVIATION

Aviation Security: Additional Actions Needed to Meet Domestic and International Challenges (GAO/RCED-94-38, Jan. 27, 1994).

Aviation Safety: FAA Can Better Prepare General Aviation Pilots for Mountain Flying Risks (GAO/RCED-94-15, Dec. 9, 1993).

Aircraft Certification: FAA Can Better Meet Challenges Posed by Advances in Aircraft Technologies (GAO/T-RCED-94-53, Oct. 20, 1993).

Aircraft Certification: New FAA Approach Needed to Meet Challenges of Advanced Technology (GAO/RCED-93-155, Sept. 16, 1993).

FAA Work Forces: Important Decisions Affecting Staff Use and Management (GAO/T-RCED-93-59, June 30, 1993).

Aviation Safety: Unresolved Issues Involving U.S. Registered Aircraft (GAO/RCED-93-135, June 18, 1993).

FAA Evacuation Standards (GAO/RCED-93-165R, June 8, 1993).

Air Traffic Control: Status of FAA's Modernization Program (GAO/RCED-93-121FS, Apr. 16, 1993).

Aircraft Maintenance: FAA Needs to Follow Through on Plans to Ensure the Safety of Aging Aircraft (GAO/RCED-93-91, Feb. 26, 1993).

Aviation Safety: Slow Progress in Making Aircraft Cabin Interiors Fireproof (GAO/RCED-93-37, Jan. 6, 1993).

Aviation Safety: Increased Oversight of Foreign Carriers Needed (GAO/RCED-93-42, Nov. 20, 1992).

Aviation Safety: New Regulations for Deicing Aircraft Could Be Strengthened (GAO/RCED-93-52, Nov. 18, 1992).

## APPENDIX IV

## APPENDIX IV

Aviation Safety: Additional Actions Needed for Three Safety Programs (GAO/T-RCED-92-90, Aug. 4, 1992).

Aviation Safety: Progress Limited With Self-Audit and Safety Violation Reporting Programs (GAO/RCED-92-85, Mar. 31, 1992).

Aviation Safety: Commuter Airline Safety Would Be Enhanced With Better FAA Oversight (GAO/T-RCED-92-40, Mar. 17, 1992).

Aviation Safety: Users Differ in Views of Collision Avoidance System and Cite Problems (GAO/RCED-92-113, Mar. 16, 1992).

Aviation Safety: Better Oversight Would Reduce the Risk of Air Taxi Accidents (GAO/T-RCED-92-27, Feb. 25, 1992).

Aviation Safety: FAA Needs to More Aggressively Manage Its Inspection Program (GAO/T-RCED-92-25, Feb. 6, 1992).

Aviation Safety: Air Taxis--The Most Accident-Prone Airlines--Need Better Oversight (GAO/RCED-92-60, Jan. 21, 1992).

Aviation Safety: Problems Persist in FAA's Inspection Program (GAO/RCED-92-14, Nov. 20, 1991).

Aviation Safety: Emergency Revocation Orders of Air Carrier Certificates (GAO/RCED-92-10, Oct. 17, 1991).

#### SURFACE TRANSPORTATION

Gray Market Vehicle Program: Extension Warranted, but Improvements in Vehicle Identification Are Needed (GAO/RCED-94-22, Jan. 3, 1994).

Longer Combination Trucks: Driver Controls and Equipment Inspection Should Be Improved (GAO/RCED-94-21, Nov. 23, 1993).

Amtrak Safety: Amtrak Should Implement Minimum Safety Standards for Passenger Cars (GAO/RCED-93-196, Sept. 22, 1993).

## APPENDIX IV

## APPENDIX IV

Railroad Safety: Human Factor Accidents and Issues Affecting Engineer Work Schedules (GAO/RCED-93-160BR, July 7, 1993).

Amtrak Training: Improvements Needed for Employees Who Inspect and Maintain Rail Equipment (GAO/RCED-93-68, Dec. 8, 1992).

Natural Gas Pipelines: Greater Use of Instrumented Inspection Technology Can Improve Safety (GAO/RCED-92-237, Sept. 28, 1992).

Motor Vehicle Safety: Key Issues Confronting the National Advanced Driving Simulator (GAO/RCED-92-195, Aug. 18, 1992).

Pipeline Safety: Use of Instrumented Technology to Inspect Pipelines (GAO/T-RCED-93-41, May 18, 1993).

Highway Safety: Safety Belt Use Laws Save Lives and Reduce Costs to Society (GAO/RCED-92-106, May 15, 1992).

Railroad Safety: Engineer Work Shift Length and Schedule Variability (GAO/RCED-92-133, Apr. 20, 1992).

Truck Safety: The Safety of Longer Combination Vehicles Is Unknown (GAO/RCED-92-66, Mar. 11, 1992).

Railroad Safety: Accident Trends and FRA Safety Programs (GAO/T-RCED-92-23, Jan. 13, 1992).

Hazardous Materials: 1990 Transportation Uniform Safety Act--Status of DOT Implementing Actions (GAO/RCED-92-55BR, Nov. 5, 1991).

MARINE

Coast Guard: Additional Actions Needed to Improve Cruise Ship Safety (GAO/RCED-93-103, Mar. 31, 1993).

Coast Guard: Inspection Program Improvements Are Under Way to Help Detect Unsafe Tankers (GAO/RCED-92-23, Oct. 8, 1991).

(341392)

TESTIMONY OF SECRETARY OF TRANSPORTATION FEDERICO PEÑA, BEFORE  
SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT OF THE PUBLIC WORKS  
COMMITTEE OF THE U.S. HOUSE OF REPRESENTATIVES, 10 FEBRUARY 1994

Thank you for the opportunity to be here this morning to discuss transportation safety. I greatly appreciate your strong interest in safety, Mr. Chairman, and I believe safety is the single most important job we have in the Department of Transportation (DOT).

I am pleased to say at the outset that the efforts of everyone involved with safety in the nation's transportation system have paid substantial dividends. The Department's programs are working. Our partnerships with state and local governments in our safety programs are bearing fruit. The transportation industries are also committed to the safety of their customers, and many consumers of transportation services are displaying new, higher levels of safety consciousness.

A few simple statistics highlight the extent of this improvement. Since 1980, fatalities resulting from all transportation incidents have dropped 23%, while transportation activity has increased by 37%. The improvement in highway fatalities has been dramatic and accounts for most of the net change, going from 51,091 in 1980 to 39,235 in 1992, the latest year for which complete data are available. The improvement in aviation has been equally strong. System fatalities have fallen from 1,382 in 1980 to 782 in 1993, with no fatal accidents in 1993 involving passenger flights on major U.S. air carriers. Significant progress is being made in almost every mode by virtually any measure. No developed nation enjoys a safer transportation system than does the United States.

In spite of these improvements, I continue to regard transportation fatalities and injuries and their tragic human consequences as unacceptable. I know you will agree, Mr. Chairman, that any death in transportation is one death too many.

I have therefore undertaken in the Department a four-pronged approach to improving our safety performance:

- (1) making safe transportation the highest priority of the Department,
- (2) maximizing our cross-modal management of safety issues,
- (3) harnessing the potential of new safety technology, and
- (4) improving the use of information to better manage our safety resources.

With respect to the first point, DOT's strategic plan, which I introduced last month, reflects my commitment. A primary goal of the plan is To Promote Safe and Secure Transportation. The objectives under that goal are: 1) to significantly reduce deaths and injuries in our transportation system, which will reduce the burden on our health care system, and 2) to minimize the dangers to communities and industry associated with the transportation of goods.

I would like to emphasize that the Department's extensive safety activities are an important adjunct to the President's Health Care Program. Improving transportation safety, by helping people avoid death and injury, can significantly reduce the direct load on the Nation's health care system.

In 1990, motor vehicle crashes were the fifth leading cause of death overall and the fourth most frequent cause of premature death in the United States, behind cardiovascular disease, malignancies, and pulmonary disease. Highway crashes are the leading cause of death for Americans between the ages of 5 and 34. The cost of motor vehicle crash injuries in 1990 was estimated to be \$137 billion. Over \$14 billion of this went for health care expenditures, \$4 billion of which represent costs for Medicare and Medicaid paid by tax dollars.

Thus, I am working to reinvigorate the Department's safety role, not just because of the human tragedy when we fail, but also to avoid preventable costs to the Nation's health care system. In this vein, I recently set tough new goals for increasing safety belt use and reducing drunk driving. Achieving both of these goals could reduce health care costs by \$1 billion per year.

#### Cross-Modal Safety Management

The Department is organized by statute and by delegation to fulfill its safety mandate through the Operating Administrations. Their staffs possess the fundamental expertise to address the safety challenges of each mode using their knowledge of its clientele characteristics, its regulatory authority, and its technology. Overall, this approach works, and our operating administrations do a superb job of carrying out their individual safety missions.

But there are many safety issues common to multiple modes that can benefit from standardized approaches. We want to capitalize on the many opportunities for cross-fertilization and collaborative approaches to safety problems.

The recent Los Angeles earthquake provides an excellent example. My Chief of Staff, the heads of the Federal Highway Administration (FHWA) and the Federal Aviation Administration (FAA), other modal representatives, and I arrived in Los Angeles less than 12

hours after the earthquake struck, to offer immediate assistance to State and local officials. We were joined the next day by the head of the Federal Transit Administration (FTA). With all the affected transportation modes represented, we could move quickly on the many safety problems and provide any authority or reasonably justified waiver needed to California officials to resume normal operations, or to develop alternative transportation opportunities.

We were able to establish a Federal/State/local transportation task force, which could begin immediately to develop a comprehensive action plan, including overseeing the removal of highway debris and seeking innovative solutions for dealing with the coming commuter problems, such as creating HOV lanes, setting up ridesharing, and expanding commuter rail service.

Mr. Chairman, that task force managed some unprecedented accomplishments, of which I am sure you are aware, and I won't repeat them here. But I would like to focus not only on the actions taken to restore mobility, but on those taken to assure safety. FHWA engineers were available to assist the California Department of Transportation (Caltrans) in determining the safety of bridges which had undergone severe stress due to the forces of the earthquake and its aftershocks. Restoration of rail freight and passenger service after the initial quake was rapid and complete, and operations have continued safely thereafter. The major railroads operating in southern California are tied directly to Cal Tech to receive seismic data, so operations can be promptly interrupted and inspections can be conducted immediately after significant events having rail damage potential.

Our aggressive support for the expansion of Metrolink commuter rail service could not have been realized had not the Federal Railroad Administration (FRA) worked quickly and smoothly with Metrolink, Amtrak, and the Southern Pacific to provide the necessary safety oversight. Working with Transport Canada, FRA also expedited safety approval for use of available Canadian cars to augment the Metrolink fleet. FTA, from its familiarity with Metrolink, was able to facilitate financial assistance and oversee the safety checks on other elements of Los Angeles' extensive transit routes. The Research and Special Programs Administration (RSPA) helped the local municipalities deal with their ruptured gas pipelines, and worked with the oil pipeline operators and the Fire Marshal's office to establish the criteria that determined when oil pipelines could be safely turned on again. I cannot praise enough, Mr. Chairman, the outstanding response and the achievements of the cross-modal Federal/State/local team.

However, we do not wait for an emergency like the Los Angeles earthquake to bring our modal safety experts together. In reviewing our safety responsibilities, we often identify areas

where oversight by a single agency may be insufficient. One of the most difficult continuing challenges facing us is the highway-rail grade crossing problem. In 1992, 579 people lost their lives in highway-rail crashes, and nearly 2000 were injured. Train-vehicle collisions at such crossings are the leading cause of fatalities in the entire rail industry, far surpassing the total fatalities on rail rights-of-way for rail passengers, employees, and contractors. This is especially disturbing, because these collisions frequently result directly from careless behavior, usually by motorists, and from other factors that one would believe are eminently preventable.

To get new insights into this problem, I have organized an interagency task force to develop an action plan to aggressively seek ways to reduce crashes at highway-rail crossings. FHWA and FRA have the primary roles, but they will also work with the National Highway Traffic Safety Administration (NHTSA) and FTA. The action plan will develop strategies for engineering improvements, public education and awareness, law enforcement, regulation, research and development, and examination of the responsibilities of owners of private highway-rail crossings. In order to ensure this plan will be effective, we envision closer working relationships with educational groups like Operation Lifesaver, as well as Amtrak and the other railroads, highway users, law enforcement agencies, State and local governments, and the public at large, to end these highway-rail grade crossing deaths.

I have challenged this task force to go well beyond traditional thinking and use creative, dynamic and interdisciplinary approaches. I expect to receive the plan from the task force by early March, in order to present to Congress and the public our vision for solving this critical safety problem.

This effort parallels our bridge and barge safety review, stemming from the derailment of Amtrak's Sunset Limited near Mobile, Alabama, which resulted from a barge striking a bridge, and knocking the tracks out of alignment. That accident was a terrible tragedy. But it was the result of an extremely unusual confluence of circumstances and outcomes. I went to the accident site to make my own evaluation and, as a result, charged the Commandant of the Coast Guard and the Federal Railroad Administrator to review the circumstances that led to this accident, and to undertake initiatives to minimize the risk of any similar tragedy in the future. On December 10, 1993, I forwarded to the Congress a comprehensive set of remedial actions that the Department is undertaking as a result of that review.

Numerous other initiatives similarly illustrate the Department's cross-modal team approach to improving transportation safety. FHWA and NHTSA have a number of collaborative safety efforts, such as their strategic safety goals for the year 2000. FTA took

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advantage of FRA's rail expertise in its recent safety investigation of the New York MTA. The FAA took advantage of NHTSA's considerable experience on the issue of child safety seats. NHTSA took advantage of FAA's expertise when developing specifications for the very technically advanced driving simulator that they are sponsoring and I strongly support.

FHWA and NHTSA, in cooperation with FRA and FTA, are administering the national implementation of the highway Safety Management System, one of six management systems required by the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). It will enhance our capability to manage safety effectiveness through coordinated, multi-disciplinary, cross-modal safety programs at the local, State, and Federal levels.

In a different area, the safe handling of hazardous materials is highly dependent on a collaborative effort. Few people realize that there are more than 500,000 shipments of hazardous materials per day on our transportation system. DOT develops national standards and criteria to protect the public by substantially reducing the risks inherent in the movement of hazardous materials. To support these standards, DOT conducts an extensive compliance and enforcement program. RSPA, which has lead responsibility for hazardous materials transportation, conducts bimonthly meetings with FAA, FRA, FHWA, and the Coast Guard to promote uniformity of enforcement efforts, coordinate rulemaking actions, identify trends, and discuss problems.

Last week we issued final rules implementing the Omnibus Transportation Employee Testing Act of 1991. These rules constitute a major step toward reducing the threat from substance abuse, first, by making over 7.4 million transportation workers in safety-sensitive jobs subject for the first time to testing for the misuse of alcohol, and second, by enhancing our previous rules in the drug testing area. This project was a team effort that took over two years. In the development of these rules, senior representatives from my office played a lead role, working closely with the modal administrations to apply our collective ingenuity to crafting rules that we felt must be even-handedly applicable across the modes.

In this rulemaking, alcohol testing for all modes requires the use of breath-testing devices. NHTSA had developed and evaluated this technology to help local enforcement officials provide an evidentiary base in DWI cases. NHTSA's work thus became applicable to all modes, because the agency had low-cost testing equipment and protocols available, a list of suppliers who make acceptable breath-testing devices, and the case law that employers could point to in defending their procedures, including actions taken against employees impaired by alcohol.

Harnessing New Safety Technology

This brings me, Mr. Chairman, to the importance of technology in the development of higher levels of safety throughout all the modes. Technological innovation not only makes a major contribution to America's economy and global competitiveness, but it is also of fundamental importance to safety performance. Part of this is the role of information, which I will address shortly. Another part is the development of new devices, of both innovative and traditional technologies, to enable us to better perform our safety mission. The examples are legion, including new security devices at airports, new ways to detect structural fatigue on aircraft, automatic devices for restraining wheelchairs in transit vehicles, and new methods of retrofitting bridge structures to make them more earthquake resistant.

Advanced technology is at the heart of our high speed rail initiative, which will focus on improved safety as well as efficiency of passenger transportation. The Intelligent Vehicle-Highway System initiative (IVHS) will improve traffic control systems, warn drivers of dangerous situations, and make more efficient use of the existing highway infrastructure. It will combine state-of-the-art communications, sensing devices, warning systems, electronic displays, and computer technology. This technology promises a substantial reduction in the number and severity of highway crashes early in the next century.

The potential for technological breakthroughs to solve safety problems is enormous, and we would be remiss if we were not making a concerted effort to tap all of the research and technology available to the Federal government. RSPA's Volpe National Transportation Systems Center has done an outstanding job in not only performing such research, but also in making the technology developed for one mode available to other modes. But to better harness technology at the Department, we have also made several structural changes. We have created a new internal coordinating committee to manage technological development. That group consists of the modal administrators and assistant secretaries and is chaired by the Deputy Secretary. We have also hired a new Director of Technology Deployment, to integrate research and development (R&D) programs in the Department into one cohesive package.

In addition, we have sought to take advantage of advanced technology available from the national laboratories, and from defense-related companies attempting to convert their production lines to civilian use. Working through the Defense Department's Advanced Research Projects Agency (ARPA) and the Departments of Energy and Commerce, we are endeavoring to leverage more R&D funds throughout government for transportation-related research. Because of our participation in ARPA's Technology Reinvestment Project (TRP), one of those grants will be for development of

advanced phased array radar to provide simultaneous weather and air traffic information. There are a number of other TRP grants that will be applicable to our safety mission.

Also, the President's Science Advisor asked me last fall to take the lead in establishing an Interagency Coordinating Committee on Transportation Research and Development. This committee will allow us to participate directly in the setting of transportation R&D priorities across the entire Federal enterprise. As we get that work under way, one of our first tasks will be to identify and prioritize technological advances needed in transportation, many of which will address safety problems.

One of the most far-reaching civil applications of new technology involves the Global Positioning System (GPS) developed by DOD, which will have a profoundly positive impact on transportation safety. GPS provides precise real-time position determination virtually anywhere, which could allow, for example, precision approaches to small airports and far safer navigation by ships in restricted waters. It will enable a police officer, or even an automatic notification device on board a vehicle, to radio the precise coordinates of an accident site or a crime incident, permitting prompt and efficient emergency response.

DOT agencies, notably FAA and the Coast Guard, have been in the lead in developing civilian sector applications of GPS to meet safety and navigational needs. The Department has recently concluded a joint study with DOD on the requirements for managing GPS in a manner that will best serve both our national security interests and the needs of the civilian sector, particularly transportation. We have agreed on a joint management approach, which is a significant breakthrough. DOT is now preparing to take its own organizational and other steps needed to implement this agreement.

Human Factors But even as we embrace new technology for preventing accidents and improving the survivability should one occur, we must acknowledge the role of human error in accidents. Most crashes result from unfortunate confluences of factors, including questionable design features, mechanical failure, weather or other external conditions. However, in the vast majority of cases, the primary cause of the accident is human error: failure to follow rules and procedures, intoxication or drowsiness, excessive speed and poor judgment. Most of the modal administrations now have programs underway to address the capabilities of human beings and to better adapt transportation vehicles and operations to those capabilities. Much of the progress in reducing automobile fatalities in recent years has been the result of attention to these human factors--notably our alcoholic driving initiatives.

A particular aspect of "human factors" is operator fatigue. Research is being conducted by FAA on airplane crew fatigue, by FHWA on detecting fatigue of commercial truck drivers, NHTSA on the drowsy driver, and FRA on locomotive engineer stress and fatigue. These programs are being coordinated through an internal working group, on which all modes are represented, with staff support from the Volpe Center.

Currently, we attempt to control the risks due to fatigue in commercial transportation by enforcing statutory or regulatory limits on duty hours and requirements for rest periods. These regulations may change as a result of our research. There is also great interest, however, in devices that can detect the onset of operator fatigue in the vehicle and initiate remedial action before an accident can occur. The FAA, FRA, NHTSA, FHWA and FTA are coordinating their efforts along these lines and sharing their research results.

#### Improving our Safety Data

Finally, we must have good safety data if we are to allocate resources efficiently and set priorities for rulemaking and enforcement intelligently. The Department has a number of outstanding data bases, but there are still deficiencies. For the most part, we know how many accidents happen, at least at the level involving fatalities or serious injury. But we also need better exposure data (e.g., the number of accidents per mile of travel, or per ton-mile of freight movement). Our newly established Bureau of Transportation Statistics (BTS) is attacking this problem by initiating new surveys to better measure where goods and people are transported, and by what mode. These improved data bases should greatly improve our ability to estimate exposure for safety program planning and evaluation.

Most of the modal administrations now collect the safety data they need to enable them to target their enforcement actions to the greatest risk areas. In the highway area, for example, State and Federal personnel currently transmit safety performance data on motor carriers to the FHWA through the SAFETYNET system. The information includes carrier safety ratings, accident history, and results of roadside vehicle/.driver inspections. FHWA plans to provide electronic access to carrier safety data and driver license information to 100 Motor Carrier Safety Assistance Program roadside inspection sites by 1996.

One of the recommendations from Vice President Gore's National Performance Review (NPR) is for the Department to develop common, government-wide measures of transportation safety in order to facilitate communication among agencies and their customers and to permit more informed consumer choice through cross-modal safety comparisons. In response, we have established a working group on government-wide measures of safety, under the direction

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of my Assistant Secretary for Transportation Policy. His office houses my safety staff which deals with all safety matters except safety data collection.

The working group has been meeting regularly, and we expect to expand it to include non-DOT agencies shortly. It is addressing the problem of definitions and data elements for safety statistics; the broader question of our overall statistics policy and needs is being taken up by the BTS.

The BTS is beginning to play an active role in the analysis, documentation and improvement of transportation safety data, taking a fresh look at the underlying statistical questions, such as validity and reliability of the data, as well as the policy issues that drive data collection. As specified in the ISTEA, the BTS will compile, analyze, and publish a comprehensive set of transportation statistics, providing summaries, aggregates, and multiyear averages of transportation-related information. To prevent duplication, ISTEA specifically precludes the BTS from requiring any other department or agency to collect data or from reducing the authority of any other office in the Department to collect and disseminate data independently.

I am pleased to say that the BTS will shortly publish its first annual Transportation Statistics Annual Report. It will summarize and analyze available safety data, tabulating accidents, fatalities and injuries by mode, and also reports on other safety statistics, such as near mid-air collisions and terrorist threats against air carriers. Data for the last thirty years, to the extent they were collected, are now accessible in a continuous time series in both hard copy and machine-readable formats.

Your letter of invitation also asked that I address our progress on four other NPR recommendations. I have included information on their status as an attachment to this testimony.

I would like to thank you, Mr. Chairman, and the Committee, for this opportunity to share my views on our cross-modal safety planning and management. I would now be pleased to answer any questions you may have.

## Attachment

**NATIONAL PERFORMANCE REVIEW  
ISSUES OF INTEREST TO THE SUBCOMMITTEE****DOT01: Measure Transportation Safety**

NPR recommends the development of common, government-wide measures of transportation safety.

**Departmental Response:** Under the Direction of the Assistant Secretary for Transportation Policy, the Department has established a working group that has met three times already and is determining whether the data exist in all modes to support an acceptable common measure of transportation safety. The group will expand to include non-DOT members in the next few months.

**DOT02: Streamline the Enforcement Process**

NPR recommends pilot programs in the U.S. Coast Guard, the Federal Aviation Administration, and the Federal Highway Administration, designed to offer greater flexibility in enforcement methods.

**Departmental Response:** Under the direction of the Assistant General Counsel for Regulation and Enforcement, FAA, FHWA, and USCG are developing plans for streamlining the enforcement process. We expect an expedited data-gathering process.

**DOT11: Improve Intermodal Transportation Policy Coordination and Management**

DOT should institute a strategic planning process to promulgate national, integrated transportation policies.

**Departmental Response:** A Strategic Plan for the U.S. Department of Transportation has been developed and disseminated. It sets forth the challenges the Department faces, the DOT mission, and seven strategic goals.

**DOT12: Develop an Integrated National Transportation Research and Development Board**

DOT should examine the nation's transportation-related research and development portfolio and develop an integrated national transportation plan that considers specific transportation research needs as well as intermodal transportation plans.

**Departmental Response:** Preliminary work on this issue has begun at the staff level. The Secretary has hired a Director of Technology Deployment and an Interagency Committee on Transportation R&T has been established.

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**DOT14: Improve DOT Information Technology Management**

The department should develop an information management strategy which will enable the sharing of data among its component agencies and reduce costs.

**Departmental Response:** Under direction of the Assistant Secretary for Administration, information technology strategies that enable data sharing among the Department's component agencies are being developed.

January 1994

Department of  
Transportation

# STRATEGIC PLAN



"Tie America Together"



Invest Strategically in  
Transportation Infrastructure



Create a New Alliance



Promote Safe and Secure  
Transportation



Actively Enhance our  
Environment



Put People First



Transform DOT





THE SECRETARY OF TRANSPORTATION

WASHINGTON, D.C. 20590

January 1994

My fellow employees:

It is with great pride that I present the DOT Strategic Plan. I am proud of it because it was developed through a thoughtful and inclusive process—one that reflects the collective talent, thoughts, aspirations and diversity of the Department of Transportation.

I hope that after reading it you will use it as a tool to implement the seven goals outlined within the plan.

My sincere thanks to everyone who worked so hard to make this Strategic Plan much more than a document, and to all of you who will help bring it to life.

A handwritten signature in cursive script that reads "Federico Peña".

Federico Peña

Secretary



## Introduction

We have always been a nation in motion. Americans have moved farther, gone faster, and made more progress in our short history than any other country on earth.

As we approach the next century, our transportation system remains critical to the well-being of this nation we have built together. There are nearly 4 million miles of highways and roads; more than 240,000 miles of rail; and 11,000 rail miles in rapid transit. Traveling along them are 142,955,623 registered automobiles, 38,930,360 light trucks, 5,854,673 large trucks, more than 70,000 buses, 1,000 trolleys, 5,000 commuter rail cars; and, in the skies, 298,710 civil registered aircraft. In addition, thousands of barges travel on 26,000 miles of navigable waterways, and we have a 190,000 mile petroleum pipeline system. Our Coast Guard men and women safeguard the nation's ports, waterways, and vessels. Those ports, along with the country's airport facilities, serve as gateways to the rest of the world for our increasing trade.

This transportation infrastructure strengthens America by bringing people and communities closer together, spurring trade and commerce to meet the new demands of a global economy, revitalizing manufacturing, and maintaining our national security. Together, the transportation industries represent 17 percent, or about \$1 trillion, of our Gross Domestic Product, and transporta-

tion capital stock – our infrastructure – is valued at \$2.4 trillion.

Our challenge now is to shift our attention from what we've built to how we can make it work better for our country – through the adaptation and modernization of our existing infrastructure. This reinforcing and rebuilding effort can create jobs, improve our quality of life, spur technological development, and fuel long-term economic growth.

We must provide future generations with a transportation system that is safer, more environmentally sound, and more efficient. We need to apply America's tremendous reserves of energy and ingenuity to ensure that our transportation system continues to serve our country's goals and enhance the quality of life for our people in the years to come.

In order to position ourselves for success in the months and years to come, we have developed a Strategic Plan for the Department of Transportation. This is not merely a document. It is a practical guide for what we need to do and how we will go about doing it – a plan that reflects the importance of working together as a department and working in partnership with other areas of government, private industry and the broader community to "Tie America Together." We need to use this plan – not merely read it – and to think of it as a map for today and a blueprint for the future.





## Who & What We Are

The Department of Transportation is the federal steward of the nation's transportation system and speaks for transportation in the federal government. It carries out its mission in four ways:

- **g**etting standards for safety and other key aspects of the transportation system and enforcing those regulations.
- **d**istributing funds to state agencies, transportation providers and other transportation-related institutions to plan, construct, and operate the transportation system of America – and shaping the direction of its development in partnership with state and local entities.
- **i**nteracting with other federal agencies to carry out broader federal mandates such as clean air and national security policies.
- **p**roviding law enforcement and traffic management services for the nation's airspace and waterways.

The Department of Transportation employs 105,000 people, headquartered in Washington and deployed in federal offices across the country. It includes the Federal Highway Administration, the National Highway Traffic Safety Administration, the Federal Railroad Administration, the Federal Transit Administration, the Federal Aviation Administration, the United States Coast Guard, the Maritime Administration, the Saint Lawrence Seaway Development Corporation, the Research and Special Programs Administration, and the Bureau of Transportation Statistics, as well as the Office of the Secretary.

Each operating administration has its unique mission, its own

management and organizational structure, and its own strategic plan. Nevertheless, they all operate under a common mission and a commitment to create the best possible transportation system for America. Already, America's transportation system is the best in the world. Our aviation system handles more aircraft more safely than any other. Our highways create the most extensive network in the world and have the best record of safety per passenger mile traveled. Our rail system is the most efficient in the world. Our ports and waterways, combined with our highways and railroads, are the safest and most extensive intermodal network in the world. And around the country new energy-efficient, environmentally sound transit systems are under construction.



## The *Challenge* We Face

But, America's transportation system does have its problems. Highway congestion is worsening; air pollution caused by the internal combustion engine continues to plague urban areas; our investment in transit systems is not translating into increasing numbers of commuters using transit.

Much of our transportation infrastructure is in need of renovation. It is estimated that a quarter of a million miles of our major highways — nearly 25 percent of the total — are in need of major repair; that nearly 250,000 highway bridges — 40 percent of the total — are either structurally deficient or functionally deficient; and that our buses run for an average of 16 years, long after their expected life of 12 years.

We know that if we don't maintain our transportation equipment and infrastructure now, we will be confronted with more costly reconstruction later. We are also lacking in the application of new technolo-

gy in transportation. High-speed rail, better quality materials for highways and bridges, and other technologies, although available today, have not yet been widely applied in America's transportation system.

Furthermore, Americans remain frustrated by fragmented transportation options and the inability to move themselves and their products and services easily from one form of transportation to another as they go about their business. Twenty-three large airports experience at least 20,000 hours of airline flight delay each year. Amtrak has been hobbled by insufficient investment.

And our system should be safer. Although the number of people who die in transportation accidents is lower than it's been for 30 years, 40,000 people still die on our highways each year, and nearly \$15 billion each year is spent on health care related to traffic accidents.



# The DOT Mission

To address this challenge, the Secretary of the Department of Transportation has established the following mission:

*The Department of Transportation will “Tie America Together” with a safe, technologically advanced, and efficient transportation system that promotes economic growth and international competitiveness now and in the future, and contributes to a healthy and secure environment for us and our children.*

In an era of severe limitation on available resources, and an era of national deficit reduction, there are not enough transportation dollars to meet all of these needs. We are compelled by the public trust to ensure that our national transportation infrastructure does not deteriorate; that our investments improve the condition of our environment; and that our decisions drive forward our national economy, and are a catalyst for improving the safety and quality of life for our citizens. Strategic utilization of our resources is critical to carrying out this public trust.

Therefore, to implement the mission of the Department of Transportation, the Secretary has established seven goals.



# DOT

## *Strategic Goals*

1. "Tie America together" through an effective intermodal transportation system.
2. Invest strategically in transportation infrastructure, which will increase productivity, stimulate the economy, and create jobs.
3. Create a new alliance between the nation's transportation and technology industries, to make them both more efficient and internationally competitive.
4. Promote safe and secure transportation.
5. Actively enhance our environment through wise transportation decisions.
6. Put people first in our transportation system by making it relevant and accessible to users.
7. Transform DOT by empowering employees in a new team effort to achieve our goals.

The goals identified by the Secretary give priority to certain functions and projects of the Department, and this will be reflected by both the expenditure of time and the allocation of resources granted them. Meeting the goals requires that individual modes work together and expand the scope of their own stewardship. Likewise, discipline is needed to select strategically the approaches and projects to drive these goals forward. The Department and each mode will review business as it is now conducted, and may even stop doing some things in order to best use our resources to continue or initiate projects that will accomplish these goals.

### How We Will Achieve Our Goals

The following section elaborates upon the seven goals by identifying for each the key objectives and high-priority projects and activities to achieve them.





**"Tie America Together"  
through an effective intermodal  
transportation system.**

**O**bjective Achieve a new National Transportation System that integrates all modes and emphasizes connections, choices, and coordination of transportation services and that positions this country as an effective economic competitor in the global market.

**O**bjective Restore the health of the aviation, maritime, and passenger rail industries.

***T*o meet these objectives we will:**

- 1.** Establish a National Transportation System (NTS), following the model of the National Highway System (NHS), to evaluate nationally significant transportation infrastructure and future freight and passenger needs, and encourage state and regional agencies to support and incorporate these systems in their transportation plans.
- 2.** Move Amtrak toward financial stability and world-class passenger service.
- 3.** Implement an aviation revitalization strategy.
- 4.** Implement a maritime revitalization strategy.
- 5.** Identify and develop global transportation corridors.



**Invest strategically in transportation infrastructure, which will increase productivity, stimulate the economy, and create jobs.**

**O**bjective Work to "complete what we have started" and to "repair what is broken" on time and within budget.

**O**bjective Ensure that new projects strengthen the national and regional economies, reduce congestion, increase efficiency, and enhance safety.

**To meet these objectives we will:**

1. Develop a strategy to repair and build transportation infrastructure including highway, rail, transit, and aviation projects based upon needs assessments and cost-benefit analyses, including a timetable that results in observable progress within the next three years, and a comprehensive program for effective, ongoing maintenance in future years.
2. Complete the Northeast Rail Corridor within established time frames and ensure that it matches world class standards.
3. Work with Congress and all interested parties to develop a comprehensive, continuing, and reliable funding program for transportation infrastructure, including expanded use of innovative financing mechanisms and private sector investment to maximize the benefits of federal investments.
4. Encourage the use of United States companies and promote greater opportunities for minority- and women-owned businesses.
5. Identify opportunities to provide strategic support to new transportation industries that have the potential to benefit the nation's economy.



*>Create a New Alliance*

**Create a new alliance between the nation's transportation and technology industries to make them both more efficient and internationally competitive.**

*Objective* Accelerate technological advances to make our transportation system more efficient, environmentally sound, and safe.

*Objective* Promote the development and export of transportation technology.

*To meet these objectives we will:*

- 1.** Accelerate the Intelligent Vehicle Highway System program.
- 2.** Implement the Global Positioning System as the world's standard in the air, on land, and over water.
- 3.** Support the use of advanced materials in manufacturing and constructing transportation equipment and facilities.
- 4.** Promote high-speed rail as a viable transportation option in select corridors.
- 5.** Work with other departments and agencies to direct the research and development funding for new transportation technology to meet our nation's needs, and restructure DOT research and technology programs to complement and support this effort.
- 6.** Support commercialization of the "Clean Car Initiative" working with the private sector and government agencies.
- 7.** Implement the President's new shipbuilding initiative to enable American shipbuilding to be more competitive globally.
- 8.** Promote low-cost access to space with technical enhancements to the current expendable launch vehicle fleet while the next generation launch system is developed.



## Promote safe and secure transportation.

**Objective** Significantly reduce deaths and injuries on our transportation system, which will reduce the burden on our health care system.

**Objective** Minimize the dangers to communities and industry associated with the transportation of goods.

### To meet these objectives we will:

1. Implement a new strategy to bring an end to deaths on the highways, with significant public outreach, public education, aggressive enforcement, and collaboration with safety organizations and cooperation with state and local governments to promote new safety technology.
2. Improve safety at intersecting transportation modes such as bridges with waterways and highways with railroads.
3. Complete and implement statutorily mandated drug and alcohol rules, and monitor their effectiveness.
4. Significantly improve the safety of transporting hazardous materials on our air, water, surface and pipeline transportation network.
5. Maintain and advance our leadership in aviation safety, and in the safety of our ports, harbors and waterways.
6. Identify and implement new measures to enhance security on all modes of transportation to achieve personal security and national security goals.



Actively Enhance  
Our Environment

**Actively enhance our environment  
through wise transportation decisions.**

**Objective** Harmonize transportation policies and investments with environmental concerns.

**Objective** Provide leadership by our own example to implement environmentally friendly solutions to DOT's daily activities.

**To meet these objectives we will:**

1. Introduce low emission and alternative fuel vehicles into the DOT fleet and promote the use of environmentally friendly vehicles by the general public.
2. Promote congestion reduction and demand management strategies in metropolitan areas and on our nation's highways that include specific targets and deadlines.
3. Encourage and reward efforts by state and local governments to integrate transportation and surrounding land uses.
4. Work closely with EPA, DOE, state and local governments, and MPOs (metropolitan planning organizations) to implement fully the Clean Air Act Amendments of 1990.
5. Vigorously implement marine pollution agreements and the Oil Pollution Act of 1990, and lead in the development of new programs to further enhance water quality.
6. Aggressively implement the transportation elements of the President's Global Warming Initiative.



**Put people first in our transportation system by making it relevant and accessible to users.**

**Objective** Put consumers and the traveling public first.

**Objective** Ensure that transportation policies and investments embrace the concerns of the traveling public and neighborhoods, economic development interests, and other societal concerns.

**To meet these objectives we will:**

1. Ensure mobility in all transportation modes for those Americans with disabilities.
2. Support public involvement in the transportation planning process and make the MPO planning process work.
3. Ensure that disaster relief efforts restore mobility and commerce to users in an effective and efficient manner.
4. Make transit and passenger rail more viable options for the traveling public.
5. Improve public mobility by promoting strategies that encourage stronger intermodal connections and coordinated, user-friendly public information and signage to increase customers' choices.
6. Ensure that transportation planning and investments for the movement of people and goods support economic development, strengthen neighborhoods, and are friendly to America's communities.



*Transform DOT*

**Transform DOT by empowering employees in a new team effort to achieve our goals.**

*Objective* Listen to our customers, both internal and external, and provide them with the quality services that they want.

*Objective* Cultivate a responsive, pro-active work ethic that rewards "getting it done."

*To meet these objectives we will:*

1. Ensure that the mission statements, action plans and performance measures of each operating administration and office support and reflect the mission and goals we have collectively committed ourselves to in the DOT Strategic Plan.
2. Promote increased use of technologies that will create a more effective and productive internal organization.
3. Use the reservoir of experience and ingenuity of employees and their representatives in order to add a new dimension to relations between the workforce and management, and ensure that employees have a voice in the process for adapting new technologies and new structures into our transportation system.
4. Develop continuous customer feedback to refine the services we are providing.
5. Implement the National Performance Review recommendations at DOT by reinvigorating what works well, eliminating what is not necessary, and reinventing that which could work better.
6. Take steps to ensure that the DOT workforce reflects the diversity of the American people and that all employees are afforded the same opportunities for reaching their highest potential.
7. Provide leadership that builds and maintains an environment for workforce excellence that increases worker involvement, encourages learning, improves performance and recognition systems, and emphasizes employee well-being and satisfaction.

# INTERMODAL TRANSPORTATION SAFETY

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WEDNESDAY, MARCH 2, 1994

HOUSE OF REPRESENTATIVES,  
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION,  
SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT,  
*Washington, DC.*

The subcommittee met, pursuant to notice, at 10:09 a.m., in room 2167, Rayburn House Office Building, Hon. Robert A. Borski (chairman of the subcommittee) presiding.

Mr. BORSKI. The subcommittee today is continuing to look at the Department of Transportation's process for determining its safety priorities, allocation of safety resources, and strategies for ensuring safety in all modes of transportation.

At our last hearing on February 3, we heard an outstanding presentation by Secretary Peña on his plans for improving coordination on safety issues at DOT. Today, in a rare event, we have representatives of all the modal administrations at DOT to give us detailed information on the Department's intermodal safety policy.

The issue of intermodal safety raises some crucial policy issues. Are there different priorities given to safety in different modal administrations? Is there an established procedure for coordinating action between the different modal administrations? Does DOT view safety policy on an individual mode-by-mode basis, or is there an overall comprehensive safety policy? Where are the weaknesses in the existing policy and how are they being corrected?

It is clear that there are longstanding differences that separate the modal administrations. The question the subcommittee is asking is whether the existing policy differences are good enough in the intermodal transportation world of the 1990s to ensure the maximum safety to every single American traveller.

We should be ensuring safety to the maximum extent that DOT's resources will allow. Safety policy should not be constrained by the barriers that have been erected between the modal administrations.

This subcommittee has full confidence in Secretary Peña's commitment to safety. We look forward today to hearing the details of how these safety policies are being implemented and coordinated at the modal administration level.

I now thank the distinguished ranking member for joining us.

This morning we would like to welcome Rear Admiral Arthur E. Henn, director, Office of Marine Safety, Security and Environmental Protection, United States Coast Guard; Rose A. McMurray, chief of staff, Research and Special Programs Administration, United States Department of Transportation; Charles H. Huettner, act-

ing associate administrator for aviation safety, Federal Aviation Administration, United States Department of Transportation; Bruce M. Fine, acting associate administrator for safety, Federal Railroad Administration, United States Department of Transportation; Dennis C. Judycki, associate administrator for safety and system applications, Federal Highway Administration, accompanied by: Michael F. Trentacoste, director, office of program management support, Federal Highway Administration, United States Department of Transportation; Donald C. Bischoff, associate administrator for plans and policy, National Highway Traffic Safety Administration, United States Department of Transportation; and Lawrence L. Schulman, associate administrator for technical assistance and safety, Federal Transit Administration, United States Department of Transportation.

I welcome you all and ask you to please rise and be sworn in.  
[Witnesses sworn.]

Mr. BORSKI. I again thank you all for coming. It is a rare event that you all could be here at one time and we are very pleased that you could. I understand that you have among yourselves—in another rare occurrence—agreed to the order of testimony.

Admiral Henn, I understand you are to be our lead witness.

Let me remind you all, if I may, that we have your written testimony and we would ask that your verbal testimony be limited to 5 minutes.

Admiral.

**TESTIMONY OF REAR ADMIRAL ARTHUR E. "GENE" HENN, CHIEF, OFFICE OF MARINE SAFETY, SECURITY AND ENVIRONMENTAL PROTECTION, UNITED STATES COAST GUARD, ROSE A. McMURRAY, CHIEF OF STAFF, RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION, UNITED STATES DEPARTMENT OF TRANSPORTATION, CHARLES H. HUETTNER, ACTING ASSOCIATE ADMINISTRATOR FOR AVIATION SAFETY, FEDERAL AVIATION ADMINISTRATION, UNITED STATES DEPARTMENT OF TRANSPORTATION, BRUCE M. FINE, ACTING ASSOCIATE ADMINISTRATOR FOR SAFETY, FEDERAL RAILROAD ADMINISTRATION, UNITED STATES DEPARTMENT OF TRANSPORTATION, DENNIS C. JUDYCKI, ASSOCIATE ADMINISTRATOR FOR SAFETY AND SYSTEM APPLICATIONS, FEDERAL HIGHWAY ADMINISTRATION, ACCOMPANIED BY MICHAEL F. TRENTACOSTE, DIRECTOR, OFFICE OF PROGRAM MANAGEMENT SUPPORT, FEDERAL HIGHWAY ADMINISTRATION, UNITED STATES DEPARTMENT OF TRANSPORTATION, DONALD C. BISCHOFF, ASSOCIATE ADMINISTRATOR FOR PLANS AND POLICY, NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, UNITED STATES DEPARTMENT OF TRANSPORTATION, AND LAWRENCE L. SCHULMAN, ASSOCIATE ADMINISTRATOR FOR TECHNICAL ASSISTANCE AND SAFETY, FEDERAL TRANSIT ADMINISTRATION, UNITED STATES DEPARTMENT OF TRANSPORTATION**

Admiral HENN. Thank you, Mr. Chairman. Indeed it is a pleasure to be here.

We have seated ourselves around this table in the order that we will give our testimony. We thank you for acknowledging each of

the representatives that are here. Indeed we, the DOT panel of modal administration representatives, appreciate this opportunity to come here today and share with you our accomplishments and our plans for dealing with cross-modal safety management.

If I could jump into my summarized statement, sir, I would like to say that the Coast Guard is part of the Department's intermodal safety team. We, the Coast Guard, have had a major impact both here in the United States and internationally with regard to safety. Although during the recent years our responsibilities have been increased greatly, our primary mission of safety, facilitating commerce, and fostering the safe use of the Nation's waterways ever remain the core of our organization.

I am going to briefly speak on a number of areas all the way from business focus to port state control to fishing vessel safety to statistical database. We have put up for your reference the activities of each of our administrations and the areas that we feel we have primary responsibility as far as answering your questions, and those of the committee members.

Historically, with regard to business focus, the Coast Guard's operations have been directed through nationwide performance standards. We tell the field how to do it and how often to do it.

In looking at this, we have found that one of our greatest opportunities for improvement lies in minimizing micromanaging our 50 field units. Indeed, we see that we need to let those closest to the risk, manage the risk. We intend to do that more and more.

When we look at vessels we recognize that there are 14 times as many foreign flag vessels calling here as our own U.S. flag vessels. Therefore, within the Coast Guard there is a conscious shift of emphasis toward inspecting foreign flag vessels, the words being port state control in the international community.

We believe that in the maritime community we have done about as much with the widgets, with the ships, and with the equipment as we can do. We really need to focus on the people that are not only managing those ships, but are also navigating those ships. We have established a coordinating committee on human factors. We have had this in operation for about 4 years now. The thrust is to provide guidance not only here at home, but internationally on those areas we should be focused on, such as: work hour limitations; communications problems, and the need for vital information to be exchanged between the crew on the bridge and pilots and others providing service to the ship.

We have been working on fishing vessel safety since 1971, and indeed we are seeking legislation, which finally came about in 1988 when the President signed into law the Commercial Fishing Industry Vessel Safety Act. Regulations have been promulgated. We see a start of a downturn now of reducing the number of losses of lives of commercial fishermen from approximately 100 per year to something less than that. We hope that we can continue to see that ramp-down over the years.

As required in that law, we have provided two reports to Congress—one on licensing and one on fishing vessel inspection. These reports have been submitted, and we hope to see action taken on them shortly.

Obviously, environmental protection is the theme of the 1990s, as far as we are concerned. Within the Department, the Office of Pipeline Safety, under RSPA, and the Coast Guard have a partnership working on a preparedness and response exercise program that ties the industry and the Government together on an international exercise scheme to make sure that we not only have the equipment, but that we can use it when there is an oil spill or a hazardous material spill.

In search and rescue, we have some real success stories. We have improved our primary tool, the computer assisted search planning system. We have incorporated into it environmental factors that are vital to accurately predict drift, graphical interfaces for search area displays, and operator-friendly enhancements—meaning we can save more lives and save those lives quicker.

Vessel traffic services and aids to navigation continue on. They have had a great record in the past and now we maintain over 49,000 of these aids. Indeed it is a vital part of the safe waterways management and the safe usage of our waterways.

We are working with RSPA and the Department on a statistical database to bring our data into a common data system within the Department. We track in real-time, every vessel that calls at a United States port, be it U.S. flag or foreign flag vessel. We know the bad boys. We target the bad boys. Indeed, we are driving the substandard ships away from this country.

That concludes my statement. If I could, I would like to turn now to Mr. Charles Huettner.

Mr. HUETTNER. Good morning, Mr. Chairman and members of the subcommittee.

I am Charles Huettner, FAA's acting Associate Administrator for Aviation Safety. I appreciate this opportunity to appear before you today to discuss FAA's approach to aviation safety issues.

Aviation safety has shown long-term, continuous improvement in all facets. This past year was a particularly good one in terms of safety. The larger air carriers enjoyed their second-best accident record ever, and suffered no passenger fatalities. Commuter airlines also experienced the second lowest accident rate ever recorded, and air taxis their safest year ever. In general aviation, the number of accidents and fatalities was the lowest ever recorded.

Accident data compiled by the National Transportation Safety Board is, of course, an important means of measuring safety performance, and it is analyzed carefully by the FAA to tailor our safety programs. But there are a variety of other tools upon which the FAA relies to monitor safety performance on a real-time basis.

For example, we monitor carefully the performance of the air traffic control system through a series of reporting programs. Each incident is investigated and corrective action, as appropriate, is taken to reduce the possibility of further incidents.

We also monitor aircraft system performance and reliability. Information generated through programs such as these enable us to identify developing trends and to take prompt corrective action.

We also have in place an anonymous incident reporting system, called the Aviation Safety Reporting System, which is operated for us by NASA. It provides us an additional source of data that might

otherwise go completely unreported. Our Aviation Safety Hotline extends this principle of anonymous reporting to the general public.

Reporting systems such as these give us a comprehensive look at the operation of the system, which is supplemented by surveillance and inspection activities that give us a more detailed picture of the safety performance and compliance of the aviation industry.

Although we have made significant improvements in the past several years in better targeting our safety inspection activities through the establishment of national and regional work programs, we recognize that there are opportunities to better identify areas that need special emphasis and targeting of aviation safety inspectors. The Safety Performance Analysis System—SPAS—is intended to help us achieve this important objective. Using data compiled from a variety of sources, SPAS will give FAA inspectors information on a carrier's compliance history and identify potential safety programs.

This will help us target our inspection resources on the basis of an airline's safety performance rather than its fleet size. SPAS is now being field-tested in nine FAA regional offices. We hope to provide SPAS to the inspectors of larger air carriers and commuters next year, and to all FAA inspectors in 1997.

Integrating human factors considerations across all agency functions is one of FAA's top priorities. We are working to better apply human factors concerns throughout the agency. Improving human performance offers the greatest potential for improving aviation safety in that the vast majority of aviation accidents involve human error.

In order to provide for a better exchange of information on work done in the human factors area, the Department of Transportation established a Human Factors Coordinating Committee in 1991 with representatives from all the modal administrations. Research projects on operator fatigue are underway in the modal agencies, and the committee is currently developing joint research projects. The fatigue researchers meet annually with the NTSB to discuss responses to Board recommendations involving human factors.

The FAA has conducted extensive research in the human factors area. A good example of this is crew resource management, or CRM. CRM training can help prevent aviation accidents by improving crew performance and coordination. Training includes instruction on team-building, developing communications skills among crew members, and dealing with automated systems.

In 1990, the FAA developed an Advanced Qualification Program as an optional means of improving crew training. This program—which includes CRM training and is conducted under FAA review and supervision—is a voluntary alternative to the traditional training requirements for individual airline crew members. United Airlines was the first to implement an Advanced Qualification Program and several other airlines are currently developing their own programs.

We are currently preparing a rulemaking proposal concerning crew training standards that would require crew resource management training for airlines covered by our Part 121 regulations. The FAA's proposed rule will also seek comments on whether to apply Part 121 major air carrier pilot training and qualification stand-

ards to Part 135 commuter operators. We believe that a sharpened focus on CRM training provides the greatest near-term safety potential, since the aviation safety record shows that the human element is associated with over 70 percent of commuter and airline accidents.

We are also continuing our efforts to improve the equipment available to aircraft operators to improve the safety and efficiency of their operations. We are working aggressively, for example, to make the satellite-based Global Positioning System—GPS—available for civil navigation and airport landing purposes. GPS offers enormous opportunities for enhancing civil aviation safety and efficiency.

To facilitate the introduction of GPS technology, Secretary Peña established a DOT working group, on which the FAA has played a lead role. This group has worked closely and cooperatively with the Department of Defense to make the system a reality for civil aviation.

We are pleased that GPS is now an operational part of the U.S. air traffic control system. FAA has certificated the first two GPS signal receivers for oceanic, domestic, terminal, and non-precision approaches. And DOD specifications for initial system operation have been accepted by the FAA for civil application. I would also add that companies are now developing equipment that would use the same system to aid automobile and truck drivers, and at least one railroad is considering the use of GPS.

In closing, Mr. Chairman, I would like to stress that improving the safety of our Nation's air transportation system is the FAA's highest priority. We are pleased that the aviation safety record continues to improve, but we recognize that there is always more that can be done to improve upon that record. I can assure you that we are aggressively working to do just that.

This completes my prepared testimony, Mr. Chairman. I would be pleased to respond to questions.

Mr. JUDYCKI. Good morning, Mr. Chairman.

I am Dennis Judycki with the Federal Highway Administration. As you recognized, with me this morning is Michael Trentacoste, who is with our Office of Motor Carrier Safety. We are delighted to discuss the ways in which the FHWA is working with our departmental partners to improve transportation safety.

Paramount within Secretary Peña's plan is the promotion of safe and secure transportation. The FHWA is responsible for the safe and efficient movement of people and goods on the Nation's roadways and we focus our safety resources in a number of different areas.

One of our major roles is to provide safety leadership for the development and application of standards for the Nation's highway system. Each year, States routinely obligate somewhere in the order of \$2 billion of Federal-aid funds for safety improvements to remove hazards and create a "forgiving" highway, with features such as breakaway sign supports.

Categorical funding for highway safety improvements was established in 1974. According to evaluations of individual safety projects under this program, for every \$1 invested in roadway safe-

ty improvements, a \$2.90 benefit is realized in terms of lives saved and injuries prevented.

Currently, under the Intermodal Surface Transportation Efficiency Act of 1991, ISTEA, over \$400 million in the Surface Transportation Program, STP, "safety set-aside" is provided to States for eliminating roadway hazards and improving safety at rail-highway grade crossings. This cross-modal rail/highway safety effort includes extensive partnering with the Federal Railroad Administration.

Our joint management of the Section 402 Highway Safety Program with the National Highway Traffic Safety Administration is yet another example of cross-modal partnership. Essentially, this is a grant-in-aid program with the two administrations working cooperatively with the States to develop and implement local traffic safety programs.

A critical FHWA role is the administration of the Motor Carrier Safety Assistance Program, MCSAP. This program provides grants to States to conduct uniform inspections of commercial motor vehicles and drivers at the roadside and perform carrier reviews to ensure compliance with Federal safety and hazardous materials regulations. The fiscal year 1995 budget request seeks full funding of MCSAP at the \$83 million level authorized in the ISTEA.

The application of new technology will be a major factor in providing safer highway travel in the future. FHWA is providing leadership in managing the Department's Intelligent Vehicle Highway Systems program through innovative partnerships not only with other modes but also with the States and the private sector. As an example, IVHS technology is being deployed to assist in crash avoidance and public transportation security. Don Bischoff, who is representing NHTSA this morning, will cover other safety applications of IVHS technology later.

I would like to highlight other initiatives which further underscore our cross-modal safety efforts.

One of these is the Safety Management System, with FHWA taking the lead in collaboration with NHTSA and the Federal Transit Administration. The SMS, which is to be fully operational in each State by 1996, is a series of management processes to ensure that all opportunities to improve safety are considered as part of the routine management of the highway transportation system. The SMS also requires that each State formalize coordination and cooperation among the various organizations responsible for highway safety.

The successful development and implementation of the Commercial Driver's License Information System by the FHWA in coordination with the NHTSA is yet another good example of cross-modal cooperation. The FHWA and NHTSA worked closely to ensure the compatibility of the National Driver Register and CDLIS. As a result, States now make one query about a driver and receive information from both systems. Approximately 6.6 million CDLs have been issued using these systems.

Finally, in addition to these programs, the FHWA has a \$4.5 million major research effort on driver fatigue and alertness which will be completed this year. We continually coordinate our progress,

results, and findings with the other modal administrations through the DOT human factors working group that was mentioned earlier.

In closing, I would like to emphasize that just as the Department strives for a seamless transportation system, the FHWA strives for a strong, cross-modal safety partnership. We continue to capitalize on the strengths of each agency as part of our common goal to reduce transportation deaths and serious injuries.

Thank you for your attention. Mr. Trentacoste and I will be happy to respond to questions, but I would first turn to Mr. Fine for his statement.

Mr. FINE. Good morning.

My name is Bruce Fine. I am an acting Associate Administrator for Safety for the Federal Railroad Administration.

On behalf of the FRA, I appreciate the opportunity to testify on the railroad safety program and to discuss how FRA is working with safety programs of other operating administrations within DOT. The primary authority for our safety program is the Federal Railroad Safety Act of 1970, which directs us to "prescribe, as necessary, appropriate rules, regulations, orders, and standards for all areas of railroad safety."

FRA addresses railroad safety issues through research and development, regulation, and enforcement programs. We are a small agency in a large industry. It is therefore imperative that we strategically target our safety resources.

Railroad safety has improved dramatically. Since 1978, the train accident rate has fallen 70 percent. The challenge we now face is the continued reduction of risk across the system of over 200,000 track miles upon which America must increasingly rely to carry freight and passengers as part of a balanced transportation system.

The Nation's railroads employ over 200,000 persons; operate 1.2 million freight cars using 20,000 locomotives; and log over 600 million train miles each year. In the office of safety, we have 545 employees, headquarters and field, to deal with the safety issues of the railroad industry. Our budget is \$44.4 million.

In addition, we work cooperatively with 31 States who participate in our program. They have a total of 132 State inspectors that aid in the enforcement of Federal safety laws which supplement the Federal staffing.

In monitoring this large industry for compliance with the Federal safety regulation, FRA uses extensive safety databases to sample a railroad's compliance based on relative risk. We use accident and casualty data, which is supplied to us by the railroads. They are required to report to FRA. We use the results of Federal and State inspection reports and traffic flow data—particularly hazardous materials flows and passenger traffic data—to develop our national inspection plan, which allocates inspector time to each railroad based on relative risk.

To further increase the leverage of our FRA safety resources, we are involved in a number of collaborative efforts. Approximately 95 percent of all railroad-related fatalities each year are related to either highway/rail grade crossing accidents or trespassing. Secretary Peña directed FRA, FHWA, FTA, and NHTSA to jointly develop a grade crossing action plan for improvement of safety at these inter-modal intersections.

This multimodal action plan will be released within the next 30 days and will address increased educational, enforcement, and engineering efforts and initiatives. This action plan is a real reflection of a new intermodal safety approach within DOT.

Last September, near Mobile, Alabama, a tow of barges blundered into a railroad bridge that was well off its intended course leading to 47 fatalities among the passengers and crew of Amtrak's "Sunset Limited". Clearly, the towboat had no business moving up that bayou in dense fog, and the bridge was a low-risk location for such an accident to happen. However, as safety professionals, we still look for ways to prevent the recurrence of this kind of tragic event.

FRA is exploring whether cost-effective answers can be found to the problem of detecting bridge damage before it causes a tragedy. FRA is also working with the Coast Guard to ensure that more timely notice is provided of bridge damage.

We have also initiated an extensive process of consultation with all interested parties to see how we can improve the quality of services we deliver, and to see how best we can work with the industry to define and address safety needs. A primary example of this is in support of a requirement to report to Congress on July 3rd of this year on advanced train control systems. We are holding a series of roundtable discussions with rail labor, rail management, and the supply industry to explore, among other issues, the costs and benefits of such systems. FRA is working more closely with Amtrak to ensure that we build safety into their system.

We believe this collaborative process can help us better produce safety results by incorporating the contributions of everyone that has a stake in railroad safety. We also make extensive use of the Volpe National Transportation Systems Center, a component of the Research and Special Programs Administration.

Among the many research and development projects that the Volpe Center has managed for FRA is a major inquiry into safety requirements for high-speed rail. The findings from the high-speed rail studies will provide an important part of the technical foundation for FRA's rulemaking effort. The Volpe Center also provides quick response support in aid of safety operations for FRA. In addition to advancing the frontiers of knowledge, the Volpe Center serves as a means of sharing technology throughout the Department, helping each of the operating administrations to gain the benefits of work going on elsewhere in the Department.

Mr. Chairman, once again, let me offer my thanks for the opportunity to appear before you today with my DOT safety colleagues.

Thank you.

Mr. BISCHOFF. Good morning, Mr. Chairman.

My name is Don Bischoff, the Associate Administrator for Plans and Policy with NHTSA. I am pleased to have the opportunity to appear before you to discuss the planning, management, and co-ordination of the National Highway Traffic Safety Administration's safety programs.

NHTSA's principal mission is to reduce traffic accidents and the deaths and injuries that result from them. We do this under two legislative mandates. Under the National Traffic and Motor Vehicle Safety Act of 1966, we promulgate Federal motor vehicle safety

standards, conduct research and development, carry out compliance and safety defect enforcement activities, and provide consumer information. Under the Highway Safety Act, we set policies for and lead the Nation's State and community highway safety program by establishing and setting priorities among the highway safety guidelines and assist State and local governments with their planning. The act also authorizes research and development and demonstration projects; technical assistance; and formula and incentive grants.

Americans, as individuals and in commerce, make massive use of our highways. Unfortunately, this extensive use of our highways, and the extensive freedom we have in using the highways has a price. More than 94 percent of the human casualties and 99 percent of the injuries in transportation are the result of motor vehicle crashes. Traffic crashes cost the Nation every year nearly 40,000 lives, over 5 million injuries, 500,000 of which require hospitalization; \$137 billion in medical costs, lost productivity, property damage, and transactional costs; and more than \$14 billion in direct medical care costs, \$3.7 billion of which was paid by public funds through Medicare and Medicaid.

NHTSA is spending \$17 million this year—nearly a quarter of our total contract budget and over 40 percent of our research and development budget—on collecting data to document and analyze human and property losses on our Nation's highways. This permits the agency to identify how, where, and why crash losses are occurring so that countermeasures can be developed to address these losses.

Our major safety data collection programs are the Fatal Accident Reporting System, which provides a census of all fatal highway crashes in the United States, and the National Accident Sampling System, which collects both detailed information on a national sample of about 5,000 crashes a year and more general data on a national sample of about 45,000 crashes per year. We also have State crash data files that provide large amounts of data for general analyses. We have recently modified both our FARS and NASS data collection programs to include more data on factors leading to a crash.

We have published priority plans for several years now that spell out in great detail what the agency is doing. These plans result from analyses of where losses are occurring and what opportunities we have to reduce those losses. We are currently in the process of building upon and expanding our planning activities through the development of a strategic plan that will chart the future direction of the agency.

NHTSA has had substantial success in improving the crash safety of motor vehicles. Many passenger cars, light trucks, and vans now on sale have air bags, advanced side impact protection, 35 mile-per-hour frontal crash protection as well as meeting the traditional standards for fuel system integrity, windshield glazing, interior impact protection, and stronger door latches.

Our evaluations have indicated substantial life savings—thousands of lives annually—from all of the crashworthiness standards. In addition, an evaluation just released showed that cars with good scores in the new car assessment program, which conducts 35 mile-

per-hour barrier impacts and supplies information to the consumer, had a 25 percent lower fatality rate than cars with poor scores. The public is using safety belts, child restraints, and motorcycle helmets in record numbers. Belt use has increased from less than 15 percent in 1982 to more than 66 percent in 1993, resulting in a cumulative life saving of more than 35,000 lives. Child safety seats have saved the lives of more than 2,000 young children during the same period.

In addition, we have not ignored crash avoidance. Drunk driving is down substantially as a result of the deterrent and prevention activities over the past decade. As a result, the number of alcohol-related deaths occurring each year has been reduced by 30 percent since 1982, saving approximately 7,500 lives annually. Vehicle tires, braking, signalling, conspicuity, and other crash avoidance systems have improved in the past decade or two, and have also saved many lives.

These successes can be economically quantified. Federal grants to States and local communities must be matched by at least 20 percent State funding out of every dollar spent on implementing State highway safety program plans. State and local governments actually spend considerably more on traffic safety.

The public also pays a premium for motor vehicles and equipment, such as tires and child safety seats, that meet Federal safety standards. Combined Federal, State, local and consumer spending on highway and motor vehicle safety under Federal programs since 1966 has resulted in societal savings that are estimated to have been well over three times the total cost of these programs.

Secretary Peña's plan for improving the Department's safety performance requires that its agencies cooperate in cross-modal management of safety issues. Some of our cross-modal initiatives include cooperative research, development, and demonstration; and program implementation to achieve the Department's safety goals and objectives. We work most closely with the Federal Highway Administration because of our common concern about safety on the highway.

A particularly important cross-modal program is the IVHS program. This program conducts research, development, and demonstration on potential application of IVHS technology, for improved information to drivers, to reduce congestion, and most importantly to improve safety. We are concerned not only with direct applications to crash avoidance problems but with ensuring that IVHS programs with other basic goals do not compromise safety by distracting drivers or providing too much information at critical points in the driving task. The Department is committed to the goal that IVHS will substantially enhance the safety of the traveling public.

The agency worked closely with all agencies of the Department in the development of the recently issued DOT work place alcohol testing rule for transportation workers. NHTSA pioneered in the development of accurate, inexpensive test equipment and procedures for determining blood alcohol levels that have been broadly accepted by the country's courts. We participated in the rulemaking process for the DOT rule, developed model training programs for breath alcohol test technicians, and prepared quality assurance

guidelines for the breath test industry. We will assist other transportation agencies in carrying out the provisions of the alcohol breath test regulations for the transportation industry.

I would like to conclude my prepared statement with the observation that just as highways are an extensively used transportation network, highway safety continues to be a national priority. The Congress; Federal, State, and local governments; the automobile industry; and others should be proud of the successes we have jointly achieved. We should all look forward to future successes in this excellent public health program.

I would be pleased to respond to your questions.

Mr. SCHULMAN. Good morning, Mr. Chairman and members of the subcommittee.

My name is Lawrence Schulman. I am the Associate Administrator for Technical Assistance and Safety of the Federal Transit Administration. I am pleased to be here this morning to share this session with my colleagues.

My testimony today will cover two discreet topics. First, I will discuss the FTA safety program. Second, I will describe the Department's coordinated multi-modal safety training efforts.

Understanding FTA's legislation authority is basic to any discussion of our safety role, which is quite different from that of the other DOT agencies. FTA, before it became part of DOT in 1968, was an agency of the Department of Housing and Urban Development. This fact is most significant in understanding FTA's role in safety. Other modal administrations generally have statutory safety mandates that authorize them to regulate the industries over which they have jurisdiction. In contrast, FTA has very limited statutory safety regulatory authority and primarily is an agency which provides financial and technical assistance.

Let me discuss FTA's specific statutory safety mandates. First, Section 22 authorizes the FTA to investigate conditions in local transit operations that the Administrator believes create hazards and to require that actions be taken to correct or eliminate those hazards. We have used this authority infrequently and generally in response to congressional requests. Our most recent use of this authority was in New York City and involved a comprehensive safety investigation of the entire Metropolitan Transportation Authority.

Second, FTA's most specific safety authority requires that FTA issue rules requiring drug and alcohol testing. On February 15, 1994, we published along with the other departmental agencies our final rules in this regard.

Third, ISTEA requires States to establish an agency to provide safety oversight of any rail mass transit system that is not under FRA's jurisdiction. FTA issued a notice of proposed rulemaking in December and hopes to have the final rule published by this summer.

So as you can see, Congress has provided FTA with very specific and limited statutory authority. We believe the reason is simple: transit safety is fundamentally a local matter. In the early days of private transit, the responsibility for transit safety was vested in State public utility commissions, local transit commissions, and in general purpose agencies of government. With the advent of public transit authorities, local safety focus has continued in that direc-

tion. But within that context, FTA has had a transit safety technical assistance program in effect for many years which focuses on training and information activities. A key element of the program is the principles of system safety and system security.

FTA promotes these principles by focusing most of its resources on the training of local transit officials in professional safety and security practices essential to effective local safety programs. FTA's training program at the Transportation Safety Institute includes system safety accident investigation and bus operator safety, with a curriculum of over a dozen different courses. FTA has trained over 30,000 transit professionals since we began the training in 1976.

FTA has supplemented these technical assistance activities with industry guidelines on a variety of different topics, including emergency preparedness and materials flammability.

In 1991, FTA's Section 15 reporting program was expanded to include mandatory safety data, replacing an earlier voluntary reporting program. We now collect data from nearly 600 properties across the country. Section 15 is currently being expanded to include employee data and security and crime statistics as well.

Emergency preparedness is an ongoing concern for transit managers and for local fire, police, and emergency medical units that respond to transit emergencies. FTA currently is developing an emergency management training course that will prepare these local personnel for their responsibilities. FTA has written guidelines for both bus and rail emergency preparedness and for response to fires, especially fires in rail tunnels. FTA has also developed recommended fire safety guidelines for material selection for buses and rail cars.

This concludes the part of my testimony on safety activities. Mr. Chairman, I would now like to discuss for a few moments the Department of Transportation Safety Institute.

This institute is owned by DOT and is administered through the Research and Special Programs Administration. It provides safety and security training for a number of DOT administrations and other Federal departments as well.

TSI is located at FAA's Mike Monroney Aeronautical Center in Oklahoma City. The institute was established in 1971 and provides centralized training in accident and incident investigation, regulatory compliance, and safety management.

TSI is funded by sponsoring Federal agencies through reimbursable agreements. Since its establishment, it has trained over 260,000 individuals. Additionally, hundreds of technical assistance and evaluation tasks have been provided to its numerous clients.

TSI currently has 25 sponsors, offers over 125 courses, and is carrying an annual student load of 27,000. Mr. Chairman, 17 of the sponsors are DOT agencies and offices, with the rest coming from the Department of Defense, Department of Energy, General Services Administration, and the National Safety Council. We believe that such multiple sponsorship promotes coordinated approaches. Let me give you just a few examples.

The Federal Aviation Administration's training academy and the Civil Aeromedical Institute are both located at TSI, thereby facili-

tating intermodal exchange, improving standardized methods, and reducing duplication of effort.

Through the collocation of the Federal Highway Administration's Howard Motor Carrier Academy with TSI, course material and resources including instructors, expertise, and equipment are shared with RSPA in providing hazardous materials training to over 8,000 highway enforcement and motor carrier personnel annually.

TSI provides the FAA flight standards service regulatory support division with training support for conducting worldwide seminars. Since the inception of this project in 1993, TSI has enrolled approximately 4,000 seminar participants.

The Department intends to continue to use TSI as its primary source of safety and security training. We believe that the synergism developed on training issues has fostered the intermodal environment that TSI provides—and it provides it to the benefit of the entire Department as well as other agencies of government.

Mr. Chairman, this completes my statement. I would be glad to entertain any questions.

Ms. McMURRAY. Thank you, Mr. Chairman and members of the subcommittee.

My name is Rose McMurray, chief of staff of the Research and Special Programs Administration. This is my fourth appearance this year before this committee and I have found the Members to be both fair and comprehensive in their questioning. I hope that my being the last witness this morning hasn't completely exhausted your patience and that you will remain that way. I am pleased, therefore, for the opportunity to be here today to address the efforts that RSPA is taking to improve transportation safety.

RSPA is unique in the Department because we have a number of intermodal and multi-modal responsibilities. We have primary responsibility for hazardous material safety by all modes of transportation—except bulk vessels—pipeline safety, emergency response, research and technology, and safety and security training. Our Volpe National Transportation Systems Center in Cambridge, Massachusetts, is the Department's multi-modal research facility and serves as a national center of transportation and logistics expertise.

You have heard this morning about some of the Center's work from our sister agency, the Federal Railroad Administration. My colleague from the Federal Transit Administration, Mr. Schulman, has also just described RSPA's Transportation Safety Institute in Oklahoma City, a facility which offers safety and security training to support all modes of transportation. Because most transportation accidents can be attributed to human factors, we believe that the better people are trained, the less likely it is that they will be involved in or cause accidents.

Our safety, research, and training efforts have been successful because of the strong support of our fellow agencies within the Department, our extensive partnerships with State, local, and Indian tribal governments, and the commitment to safety by industry, environmental and public interest groups, as well as individual consumers.

As you may remember, RSPA has principal responsibility for the coordination of DOT policies related to hazardous materials trans-

portation. The Nation's safety record in this area continues to be very good. Since 1980, fatalities resulting from releases of hazardous materials transported by highway, rail, air, and water have remained relatively constant. Even one transportation-related death, however, is unacceptable, and we share the Secretary's commitment to improving the Department's safety performance in this area.

The safety record for pipeline transportation is also very good. There are more than 1.7 million miles of pipelines in the United States transporting natural gas, petroleum, and other hazardous materials. In the last 10 years, annual pipeline fatalities have ranged from a low of nine in 1990 to a high of 46 in 1989. The fluctuation in the data makes it difficult to identify any trend.

As you may know, Mr. Chairman, the largest single cause of pipeline accidents is damage from excavation or other construction activity conducted by persons not employed by the pipeline operator. RSPA, therefore, is taking steps to reduce these accidents through a rule to require pipeline operators to prevent damage to pipelines and participate in "one-call" programs. We expect to issue a final rule on that subject later this year.

We are also concerned about avoiding environmental damage caused by releases such as last year's Colonial pipeline spill in northern Virginia. At Secretary Peña's direction, we initiated a program review to ensure that our pipeline program devotes enough attention to the environment.

I would like now to describe two specific DOT programs in which RSPA has the Department's lead responsibility.

First, as I had mentioned earlier, we are assigned a responsibility under the Secretary's strategic plan for improving the safety record of hazardous materials transportation. RSPA writes and issues the hazardous materials regulations and shares inspection and enforcement responsibility with four other DOT agencies—the FAA, the FRA, FHWA, and the Coast Guard.

RSPA enforces these regulations through its inspections of Hazmat container manufacturers, reconditioners, and retesters, as well as persons who offer Hazmat for transportation by all modes of transportation. The other DOT agencies I mentioned are responsible for inspection of carriers and shippers and enforcement of the regulations in their respective modes of transportation.

This is one of the oldest—and I would assert one of the most successful—cross-modal safety efforts in the Department. We believe that the best way to achieve a safe transportation system is for each modal administration to apply the regulations uniformly, with exceptions only where modal-specific differences are justified. For example, there are certain hazardous materials that are not allowed to be transported by air or water. To ensure the Department is together on hazardous materials policies, RSPA chairs monthly meetings with the other four modal administrations to exchange information on regulatory changes, set enforcement priorities, coordinate legal issues arising from the enforcement program, and discuss innovative approaches to gaining compliance.

The result of these meetings has been a clear understanding of roles, more efficient Departmental management, and a better in-

dustry and public awareness and understanding of the hazardous materials regulations the Department issues.

In addition, RSPA led the development of a Unified Shippers' Inspection and Enforcement Data System, UNISHIP, which includes information provided by all the modes on inspection and enforcement activities related to hazardous materials shippers. This data enables the modes to better target inspections and take prior violations into consideration when assessing penalties.

Another example of intermodal cooperation is our implementation of the Oil Pollution Act. As Admiral Henn mentioned in his testimony, RSPA is working very closely with the Coast Guard, other Federal and State agencies, and industry to enhance our national capability to respond to oil spills from pipelines.

The second DOT program assigned to RSPA as the lead secretarial agent is coordinating the Department's response to emergencies that threaten the Nation's transportation system. Catastrophes such as earthquakes, hurricanes, and floods can seriously disrupt the transportation network. As Secretary Peña testified before this subcommittee last month, the recent Los Angeles earthquake provides a good illustration of the Department's coordinated response to emergencies.

RSPA is the Secretary's crisis coordinator, and as such is the focal point in the Department for gathering information and identifying what needs to be accomplished during a crisis. RSPA's direction from the Secretary is to always put people first by ensuring that disaster relief efforts restore mobility and commerce to users in an effective and efficient manner.

RSPA's specific role is to coordinate the Department's efforts to assist States and local communities in restoring the transportation infrastructure to safe operation. The modal administrations use their on-scene engineers and safety inspectors to assist State and local governments in assuring the safety of local transportation structures. To ensure an aggressive emergency response capability, RSPA is working to upgrade our communications and information systems by completing the graphic mapping capability, and linking the two other operation centers operated by the Coast Guard and the FAA in order to harness and capitalize on their expertise in communications systems.

These remarks conclude my oral testimony. On behalf of the panel, I would like to thank you once again for this opportunity to meet with you today. We will be pleased to answer any questions you may have.

Mr. BORSKI. Thank you very much for your testimonies this morning. Your written testimonies we have taken under advisement. I also appreciate the brevity with which each of you have limited your opening presentation.

I have a question for all the panelists. Perhaps we will begin with you, Ms. McMurray.

How would you characterize the quality of safety data collected by your agency, particularly with regard to accident causation data?

Ms. McMURRAY. We always feel that we should be exploring ways to strengthen the quality of our data. We actually have two

databases, one in our pipeline program and one in our Hazmat program.

Let me mention first that the Hazardous Materials Information System, which is a participative database in which all the Departmental modal agencies involved in hazardous materials participate, collects information on specific causes of incidents. It allows both RSPA and the other agencies to determine if rulemaking should be initiated or further analysis done on incidents. It allows the modal administrations to target their inspection priorities.

A couple of the witnesses today mentioned risk assessment. We believe that the quality of data is the absolute underpinning of an effective risk assessment program. I believe that the other witnesses will attest to the quality of HMIS data.

It also allows us to ensure that there is adequate follow-up to shippers or carriers who have had hazardous materials accidents and we are able to follow-up with them to ensure that in fact injury, property damage, or fatalities were in fact the result of the hazardous materials released and not the fact that vehicular damage the person may have undergone.

In the pipeline safety area, as in the Hazmat area, we have spent the last couple of budgets requesting additional funds to upgrade information. The pipeline safety office—recognizing that our inspection resources are limited, we have tried to find ways to work smarter. As such, we have undertaken many initiatives to strengthen the data.

We have moved toward a risk assessment model. We have been working with the Coast Guard and others to make more accurate and verifiable the data in the pipeline system. We will continue to undertake efforts to strengthen that.

Mr. SCHULMAN. As I mentioned in my testimony, FTA is in a continual process of updating its safety data collection. We utilize the section 15 reporting system, which is a mandatory system requiring all transit properties to report a comprehensive set of operating and financial data.

At this particular point, we are not collecting causal data, but we are actively considering ways of bringing causal data into our database. We are always sensitive to the balance in requiring data and determining whether the burden imposed on the transit industry is appropriate.

As I said, this updating has been ongoing. The mandatory aspects of it are as recent as 1991. We will continue to update our safety data as part of this continuing improvement process adding more and more into the system.

Mr. BISCHOFF. As I mentioned in my testimony, I think NHTSA makes extensive use of data. Mr. Chairman, 40 percent of our total research and development budget is spent on gathering data and analyzing it. I mentioned two of our large databases, the FARS and NASS. Historically, these have been used primarily for crash-worthiness evaluation. There has been a shift in emphasis toward crash avoidance recently and we have modified the data elements in there accordingly.

We also have a database called "Card File" where we gather data from six States with common data elements, which is largely geared toward pre-crash data for crash avoidance countermeasures.

We also do a number of special studies and we have an accident team on-board. We use some of our NASS teams to look at special air bag accidents and school bus accidents and so forth.

I think as a measure of the success of our analytical capabilities—in preparing our 1993 OMB budget, they asked us to put the entire budget of the agency on a risk/benefit basis, both from historically back to the inception of the agency in 1966 through the 1993 budget and future projections. We were able to do that and completely document through 30 extensive evaluations we have done the efficacy of not only our Federal motor vehicle standards but also our highway safety program standards.

Another measure is that we have just recently been selected as a GPRA pilot program. The entire agency has been selected as a pilot, which I think is another reflection of our capability to completely document all of our programs.

Mr. FINE. FRA also has a very extensive database. We have accident reports that come in from the railroad industry and they cite the causal factor. We also investigate about 100 of the most serious accidents each year and do a comprehensive investigation, sometimes in conjunction with the National Transportation Safety Board. They do relatively few now, but we coordinate with them when we do go out.

So we have a very good database for determining accident causation—that is used for our regulatory analysis—as well as allocating inspector resources along with our inspection databases. As I mentioned earlier, our National Inspection Plan is based on risk. We also have a national grade crossing inventory that we maintain for the States and the railroads. We have developed a resource allocation model through the Volpe Center that is used extensively by the States for spending Section 130 funds under the grade crossing program so that they can make better decisions on where to get the most bang for their buck in grade crossing improvements.

We are also developing a track maintenance evaluation system, with our office of policy in FRA to give us an idea of whether maintenance spending by the railroads might be affecting accident causation in the track area. If the spending patterns change, that may give us an indication of evolving problems before they show up in accidents.

As a last note, we reconcile our Hazmat database with RSPA periodically to make sure that if we do find any problems or corrections in poor reporting by our respective stakeholders, we go back and take corrective action to make sure that the databases are reconciled throughout the year, particularly at the end of each year.

Mr. TRENTACOSTE. Mr. Chairman, I will address it from the Office of Motor Carriers side in the Federal Highway Administration.

Several years ago, we came to the conclusion that we were not satisfied with the accident information we were getting and instituted a project with the National Governors Association in conjunction with the National Association of Chiefs of Police—NHTSA was represented on the group as well—to come up with a different way of getting accident information from the truck and bus carriers. Prior to that, the information was being reported directly by those carriers.

We successfully concluded the project, and the States will now be providing the accident information directly to the Federal Highway Administration over the Safetynet telecommunications system. There will be 22 data elements that will be collected by the States and localities and transmitted to us. We have 34 States that are now beginning to upload that information and by the end of this calendar year we expect all the States to be on-line updating that information. We are very pleased with this approach.

We think there are improvements that can be added. Accident exposure data is needed and we are working with the various offices within the FHWA as well as the Bureau of Transportation Statistics within DOT to get more and better information on the exposure of truck and bus operations on the highway.

We are not getting as part of the data elements accident causation, but we will be working with NHTSA on their work. As we get all the States uploading into our Safetynet system, we will go on and assess what additional information we need and how to get that.

Mr. HUETTNER. Mr. Chairman, in FAA, we pulse every component of the system to look for causes of problems in order to prevent accidents.

As you probably know, the National Transportation Safety Board is the primary determiner of cause, but we also participate in every accident investigation to look beyond what they look at in order to determine causal factors in accidents.

Beyond that, we have a very comprehensive reporting system that looks at air traffic control, operational errors, pilot deviations, runway incursions—the whole gamut of specific types of incidents that we review and thoroughly investigate in order to come up with the primary cause, things that we should be looking at in order to prevent accidents. Also, our inspection program is aimed particularly at being out in the system in order to find out what is happening and where we need to focus our attention.

Mr. JUDYCKI. Mr. Chairman, I was just going to mention that in addition to the motor carrier database, at the FHWA we are very faithful in working with NHTSA in relying upon the FARS data that is available.

As with NHTSA, FHWA does do some special surveys for data for special purposes. For instance, we have a highway safety information system relationship with five States that have detailed databases that we can use for research and development. That information assists us, for instance, in researching the older driver as related to design characteristics of the roadway and causal factors. So that has been very useful in our research and development activities. As NHTSA does, we also do those special inventories.

Admiral HENN. Mr. Chairman, from the Coast Guard side, our system of data collection was from the beginning based on looking at the cause of the casualty. We have had this system in effect now for a number of decades.

As with any system, you can always fine-tune it, and we have done that. We believe the data we are getting is extremely good. We do sensitivity checks to verify that the written casualty reports that are required from the commercial sector match up with the

data that our Coast Guard inspectors put into our system, the Marine Safety Information System.

We back that up with a number of things on very large casualties, such as something like the Exxon Valdez, where we would convene a Marine Board of Investigation or do a cooperative investigation with the National Transportation Safety Board. Those are primarily focused on getting at the root cause of the accident.

One of the areas we are fine-tuning right now in this system of ours is in the area of human factors. Back in 1992, we put together a new module—called a MINMOD, marine investigation module—that looks further into the cause of a casualty. Say you have a collision. We know we have the collision and a report is required to be filed. But what we are looking at now is what was the condition of the operator, the person on watch at the time of the casualty? What was his sleep cycle? What was his work schedule, while not on watch?

Looking further into what was the real cause of the casualty is our aim. We always know when steel meets steel. But the question is, did the person cause it either through an error in judgment or just because they were too tired to stand the watch?

We are very pleased with the information we are getting. We expect to see some very interesting things now, since we have had this additional human factors module in place since 1992.

Mr. BORSKI. I have a second question for all the witnesses.

Admiral perhaps I will start with you this time and then I will yield to my colleagues.

One of the DOT staff people that was interviewed by our staff for this hearing told us, "Our regulations are written in blood." He felt that it was impossible to get the Department to act on safety problems until someone dies in a disaster.

In your experience, how ready is the Department to act to correct a hazardous condition before someone actually dies?

Admiral HENN. From the marine side—and I will just address the marine side, but I think the entire Department—we are looking for the solution before we have the problem written in blood. From the marine side specifically, we have been doing this for a number of years. I will cite the commercial fishing vessel as an example. We were instrumental in carrying the torch in saying that we needed to regulate the commercial fishing vessel industry and prevent 100 lives from being lost every year.

We did this in 1971. We didn't get any support, obviously, from the industry, and not a great deal of support from any other sector in the Government—except our own Department—until the mid-1980s, at which point it shifted from a voluntary program that the Coast Guard and the Department were pushing to a mandatory program that Congress put forth.

I think the Department and we on the marine side of the house have been very proactive. I can tell you that under Secretary Peña we are even more proactive than we have been in the past. But I think we can paint a very good picture of being a proactive Department in this area.

Mr. HUETTNER. Speaking from the FAA and from the Department as a whole, I can say that it is totally appropriate to be both proactive and reactive. Obviously, the reactive side is the thing

that people see the most because that is the thing covered in the press and so forth. The majority of the programs at FAA—and I would expect from the other modes—are proactive programs.

I have an excellent example of that. We have been monitoring the rate of runway incursions over the last 5 years. We saw the rate climbing and we knew there was a problem that we needed to address. We brought together a team of people from industry and from FAA. We worked together and developed a plan that resulted in training and education; in new signs, marking, and lighting for airports; new technology to look at how we can use computers, GPS, and a number of things to help in the runway incursion area.

Here is an area where we have been proactive. As a result, the numbers are going down and we are very proud of that. There are a lot of programs that are proactive and I think we have a lot to be proud of there.

Mr. JUDYCKI. As you know, Mr. Chairman, the FHWA does not regulate the industry, but certainly in a very proactive sense carries out a program of safety improvement cooperatively with the States to assure that we target those high areas of crashes and develop countermeasures to address them, whether it be through pedestrian safety programs or through corridor type improvements.

That is accomplished very cooperatively with our sister agencies, such as NHTSA and FRA. We feel that we are out in front of identifying where those issues exist.

Mr. TRENTACOSTE. On the motor carrier side, with over 275,000 interstate motor carriers, we must focus our program on the high risk carriers. Our information systems are geared for identifying those high risk carriers and we will focus on them.

We are also trying to improve the database. One of the things we are now trying to integrate into our data system is commercial vehicle drivers who have traffic infractions that are not now being identified with a particular motor carrier. We want to get that information into our database, which will help us to target the high risk carriers.

We started several years to take a look at our safety regulations for trucks and buses. We started what is called a zero base review. Looking as if there were no safety regulations in place now, where should we be regulating and what should those regulations be? How can we provide incentives for the industry for performance-based regulations so that they will try to achieve a high level of safety instead of meeting minimum safety regulations?

Mr. FINE. We have no difficulty at all in remaining active in this area. We have over 40 regulatory initiatives underway right now, over half of which are statutorily mandated by Congress.

In addition to that, we have opened up our process—both regulatory and everything else we do in safety to our customers, rail labor, rail management, and the supply industry. We have these stakeholders in for roundtable discussions to determine what else we should do and what our priorities ought to be. We are in fact listening. We are changing the culture in FRA very quickly.

The difficulty we have in all this is how to properly prioritize all these things, given our staffing levels, so that we can do appropriate risk analysis, balancing the resources against these statu-

tory requirements and all the expectations. We have not run into any problems whatsoever with the Office of the Secretary stopping us from trying to do anything in a regulatory vein. We have never run into that.

Mr. BISCHOFF. Likewise, we have had no problem within the Department recognizing highway safety as a major contributor, as I mentioned, 94 percent of the transportation fatalities and 99 percent of the injuries. We are also coming to realize now that traffic injury is a major public health problem for the whole of society. That it is the leading cause of death for ages 5 to 34 and the fourth leading overall cause of premature death.

I think we are also coming now to realize that it is a major economic problem as well as a major public health problem and costing the country \$137 billion yearly.

Again, we have had no difficulty in recognizing that.

Mr. SCHULMAN. From FTA's perspective, I would say that most of our program is proactive in that it is preventive. Since we are not in an investigatory or regulatory agency, our major emphasis is on systems safety. By assisting the development of systems safety programs to require the assessment of safety conditions and development of programs and practices to prevent and avoid incidents.

All of our training is geared toward the development of innovations and tools and providing those "best practices" to transit professionals again, to prevent incidents and accidents. I think also the current expansion of FTA's reporting systems to begin to collect information on crime and security issues is reflective of what we see happening in the transit community at this particular point, again, to develop a set of tools and innovative practices to assist the transit community in preventing these occurrences.

I would say that we are very much proactive in a preventive role rather than in a reactive role.

Ms. McMURRAY. In our agency, we have tried to learn from each and every crisis that we have had to deal with. Hopefully, we now have mechanisms in place to better anticipate where there might in fact be future accidents in the transportation system.

I will mention a couple of areas where I think we are doing a fairly good job. In the hazardous materials area, we are fortunate in that our enabling legislation allows us to regulate materials that may pose a hazard. That language has allowed us to regulate materials that have the potential, if you will, to cause massive devastation and need for emergency response.

An example of that is in the spent nuclear fuels area. We have not had a major accident in this country in that hazard class. I hope to think that one of the reasons might be because we have very stringent regulations on the transport of those materials. As well, munitions and explosives that are transported in the Nation's highway and rail systems—I believe that we have identified those as major risks and that we moved forward to regulate that industry before a crisis occurred.

I had mentioned earlier in my testimony about the quality of data and risk assessment, particularly in our pipeline safety program. We recognize that our resources in the Federal Government are dwarfed compared to that available to State and local govern-

ments in the pipeline inspection area. We use risk assessment, a risk hierarchy, to target inspections. I believe we have taken a proactive position, not waiting for accidents to occur. Surely, the Colonial accident was a very important seminal event, if you will, in RSPA where we had a lot of questions to ask ourselves regarding how we might have avoided such a disaster. To that end, we have refocused our pipeline program to give more attention to environmental degradation from the release of oil in pipelines.

But we also recognize that the pipeline infrastructure in this country is aging. We are taking steps to regulate cast iron pipes and other older methods of pipeline construction. We also are looking for ways to strengthen State programs, including lobbying State Legislatures on implementing what we call one-call systems, which would require pipeline workers as well as construction workers to call the one-call number before they choose to excavate around a pipeline.

Hopefully, we have all at this table learned from crises we have had to deal with and have mechanisms in place where we regularly talk about the risks in the transportation system and address them.

Mr. BORSKI. The Chair would now recognize the distinguished Ranking Member, the gentleman from Oklahoma, Mr. Inhofe.

Mr. INHOFE. Thank you, Mr. Chairman.

Admiral, since I am on the Coast Guard Committee, I will begin with you.

In your written and verbal testimony, I think you referred to the fact that there must be improvements in training and operating procedures. I think we have an excellent example of this need in the circumstances revolving around the barge that hit the railroad bridge.

In that instance, it would appear that although the vessel had navigational equipment, they didn't know how to use it. What changes do you see that might address this?

Admiral HENN. Sir, the Secretary has put forward a report to Congress outlining a number of recommendations that FRA and the Coast Guard came up with. With regard to the licensing end, we think there is a need for enhancements across-the-board. We think there is a need to recognize geographical limitations on a license. We think there is a need to recognize that one type of towing vessel is not the same as another type, to recognize that to be licensed as a third mate on a deep-draft ocean-going ship doesn't qualify you—as it does today under existing regulation—to operate a towing vessel that may require skills substantially different and that are not acquired while being a third mate on an ocean-going deep-draft vessel.

We think there are needs to take a look at using simulators more. We have a project almost at completion with the National Academy of Sciences to tell us where and how to use simulators to provide not only training but to assess the qualification.

Yes, there is a need. The Secretary has addressed those areas we need to work on. Indeed, we need to move forward with those quickly, sir.

Mr. INHOFE. I am glad to hear you talk about the simulators because they are now expanding that beyond the original intent.

Ms. McMurray, I would like to talk about some things that happened recently on Monday. We all witnessed first-hand how vulnerable our transportation network system is. The bomb threat on the 14th Street Bridge affected all aspects of transportation.

I guess I can't ask, What can be done about something like that? I don't think anything can. But what role would RSPA have? What role did you play in that as far as advising other jurisdictions and other levels of government?

Ms. McMURRAY. As I understand, as that drama unfolded the efforts of the Federal Government were confined to the law enforcement arms of Government—the FBI working with the District of Columbia. Law enforcement agencies have primary jurisdiction over addressing that.

You mentioned that the 14th Street Bridge is a vital segment to commuting in the Washington area. We were vigilant in overseeing it. We offered our assistance to the city as well as the Justice Department. However, we were not called into any type of direct service.

Mr. INHOFE. So the Justice Department and the law enforcement agencies—you received no calls from them? Do you think it would be a good idea to advise them of the resources that are available and your willingness—in the event something like that happens again?

Ms. McMURRAY. Perhaps one of the other witnesses can help me here. I am not real certain what we might be able to offer directly other than assistance in diverting traffic or other transportation expertise we might be able to bring to the solution.

Mr. INHOFE. Does anyone else have a thought on that incident?

Mr. JUDYCKI. Let me just mention that one of the things the FHWA has paid a great deal of attention to perspective and are working with enforcement and others to promote is incident management programs where States and local jurisdictions essentially do some pre-planning for non-recurring incidents. Certainly, that was a non-recurring incident, and not usually of the variety that we see with fender-benders or other crashes.

There is a coalition that is now in place that is made up of State associations as well as tow truck operators and enforcement officials that have dedicated their time to getting around to many States and metropolitan areas to address how you would detect and then divert traffic in situations such as the one that occurred earlier this week.

Mr. TRENTACOSTE. If I could add, the Administrator of the FHWA last year instituted the Washington, D.C., Beltway safety initiative where we pulled together the enforcement community, emergency responders, fire departments, and whatnot to look at safety on the highways in the Washington, D.C., area. One of the things that has done is to tremendously improve the communications between all the different agencies involved—they know what our capabilities are and what we can add to a particular situation. I would imagine that they would call us if something were to come up where they thought they needed something from us.

That mechanism has certainly improved the communication between all the jurisdictions.

Mr. INHOFE. Of course, I hope it is a non-recurring thing, but you never know. I am not asking the question to be at all critical. I think everyone did a fine job, but it is one of those things that does involve everyone. Of course, it involves all aspects of transportation.

Mr. Huettner, I assume I know your position on the transfer of air traffic control functions to the Federal corporation. You are probably aware that I have some concerns with that from a general aviation perspective, a cost perspective, and safety. I am joined for probably different reasons by Mr. Oberstar. Mr. Oberstar sent an 11-page communication to you folks and sent a copy to me just in the last few days. In this, he asserts that those things that we say would be improved, we can do under the current system.

How do you respond to that?

Mr. HUETTNER. I know there is an interdepartmental team that is working on developing a plan at this point. It is really premature to provide the details of the plan at this time. But I do know that one of the going-in positions was that we were aiming at enhancing safety through the proposal. But that is really all I can say at this point.

Mr. INHOFE. When do you think—again, I am not saying this critically—we will get more details on this so that we can get down to specific questions such as, What can we not do now that we could do under that?

Mr. HUETTNER. I know they are aiming for mid-April for a report. I know that the Administrator and the Secretary both have offered to work with the Congress on this. I know your concerns are very important to them. So I am sure that they will be in touch with you as the details become available.

Mr. INHOFE. From a political perspective, you are always better off to come on out with a plan because people will read the very worst into something that isn't there. We will be very anxious to see that.

You talked a little bit about the GPS system and how you are coming into both precision and non-precision approaches. I used that for approaches all the way across Siberia, so I am pretty familiar with the use of GPS in that.

How do you think you are coming along with that? It is a great program, it is cost-effective, and it will provide a lot of safety for a lot of airports that right now don't have good systems other than maybe a NDB.

Mr. HUETTNER. Congressman, this is a very exciting program and one that we have on one of the highest priorities I have seen in the agency. It is operational today. The standards have been worked out with DOD; the satellites are there; the approach plates are there; we have over 2,000 overlays already in place. We have the first two pieces of equipment certified for airborne use. Continental Airlines has already had about 6,000 approaches into Aspen.

We are up and running and that program is exciting.

The other steps you mentioned are important. We need precision approaches. For that, we need wide area differential, and we are trying to accelerate that program. We are hoping to be able to get that into place by 1996.

Aside from that, we are also working in the 1995 time frame to prove category II/category III GPS capability. So it is on a fast track and we are very anxious for the results. Safety will definitely be enhanced.

Mr. INHOFE. You say the charts are already printed? For how many?

Mr. HUETTNER. We have overlays of existing approach plates. About 2,000 of those are available.

In addition to that, obviously you can use the GPS to fly the approaches that are already published. And this is for non-precision approaches only.

Mr. INHOFE. Unfortunately, the reality of it is that an awful lot of the non-precision approaches are used for precision approaches.

How about the ALS, the advanced landing system? How is that progressing?

Mr. HUETTNER. I am not in a position to be able to tell you, but we would be happy to supply that for the record.

Mr. INHOFE. Thank you very much.

Thank you, Mr. Chairman.

[The following was received from Mr. Huettner:]

FAA is working with the Advanced Navigation and Positioning Corporation (ANPC) in the design approval process. ANPC originally submitted a request for approval of the Advanced Landing System (ALS), now known as the Transponder Landing System, or TLS, in November 1993. Because TLS was not identical to the Instrument Landing System (ILS) type, as required by the Federal Aviation Regulations, FAA disapproved the request for approval of TLS.

In February, FAA established an evaluation team, which set the design approval requirements for TLS. It is anticipated that the actions ANPC needs to take to complete its revised submission for approval will take at least three months. Once that submission has been made, FAA will conclude the first part of the approval process and provide design approval, if forthcoming, within 90 days. This will assist the Department of Defense in its evaluation activities, and enable ANPC to market TLS on a limited application basis, assuming the product is approved. The next evaluation team meetings are set for April 6 and 7 to develop more detailed schedules and plan flight testing.

Mr. BORSKI. The gentleman from Michigan?

Mr. BARCIA. Thank you, Mr. Chairman.

I would like to compliment you on assembling such a distinguished panel of the folks today to testify before your subcommittee.

I have three concerns that I would like to share. The first concerns the Department of Transportation National Highway Traffic Safety Administration. Perhaps Mr. Judycki could respond, but I have more of a comment than a question.

The Michigan State Constitution, unfortunately, prevents my State from meeting two of the six criteria required under the Section 410 intoxicated driving mitigation program. Therefore, although my State officials inform me that Michigan has performed better than at least two-thirds of the States who qualify under the program, we are ineligible for funding.

I am already working with staff at NHTSA on this issue, Mr. Chairman, so I do not need to take up the witness' time right now. However, I do want to state for the record that it concerns me greatly that while Michigan is working well in achieving the goals of our traffic safety program, we are barred from receiving program funding which may save the lives of some of my constituents be-

cause, in my opinion, we have inflexible criteria which in some cases ignores success.

The second concern I would like to express will be directed to Mr. Fine and perhaps he could comment from the FRA's perspective.

State officials have informed me that they are concerned that there are not enough resources available to properly mark and place barriers on railroad crossings in rural areas. I wonder if the Administrator can comment on this and share with the committee what is being done to address this issue. If the Federal Railroad Administration is using other technologies or programs, perhaps it would be less expensive than actual lighted crossing guards to address the problem.

I do understand that under ISTEA there was a degree of flexibility placed for States to use some of the earmarked Federal transportation funds that come back to those States—I think around 10 percent—to upgrade safety at railroad crossings. We have a situation up in rural Michigan where we consistently are having fatalities. At certain intersections, we are not having success with our Michigan Department of Transportation in terms of getting some of those needs addressed.

But it is an issue with the public. Many suggestions have come into my office such as strobe lights, luminescent reflectors as being a less expensive method of attempting to alert the public to an approaching train at a dangerous crossing.

Mr. FINE. Again, it would be premature to get into the specifics of the plan.

As far as the funding issues, I think Mr. Judycki would be better positioned to answer that in terms of how the funds go out. That comes out of the highway funding. But we are addressing that. There are a number of different alternatives.

We are looking at additional research as part of our action plan. We are certainly open to any and all suggestions. That is why we are doing this.

Mr. BARCIA. I have one remaining comment for the Federal Transit Administration, Mr. Schulman.

The transit officials in my district have expressed a serious concern that proposals to cut operating funding may force them to shift capital budget funds to operational budgets, thereby causing them to use older vehicles for an extended period of time.

I already have been hearing for years as a State legislator that public transit systems are severely strained for operating funds. I guess one of my concerns is that this does in fact pose a threat to public safety, which may result from using older, potentially dangerous vehicles with faulty equipment in public transportation.

Mr. Schulman, would you care to comment on this? I know there is not much we can do other than to struggle to achieve a stronger level of support in the Congress in terms of appropriations. But have you been hearing that from other parts of the country? Is this a concern in terms of public safety?

Mr. SCHULMAN. We have heard similar issues raised with respect to the reduction in the operating assistance. It has always been a very thorny issue of the balance between the operating assistance program and capital assistance.

For the first time ever, the Federal Transit Administration's budget will include the full funding of formula capital assistance under the President's 1995 budget. Also, we will propose a significant increase in the capital funding under the discretionary program as well. Regarding the issue of operating older equipment—we have responded by providing States and local communities with the largest resource ever for the replacement of equipment.

Again, it was a difficult balance question of trying to decide where to prioritize the funding. But the Administration, the Secretary, and the Administrator are very supportive of public transportation and have budgeted the largest amount of money that has ever been made available in the history of our program.

We think we have adequately balanced the question, but we do appreciate the concerns of your constituents and others around the country.

Mr. BARCIA. Thank you very much.

Thank you, Mr. Chairman.

Mr. BORSKI. The Chair thanks the gentleman. I appreciate the final comment very much. Many of us have fought through the years to make sure operating assistance gets its fair share. I believe that battle will continue to be fought this year. I hope we will be successful.

Mr. JUDYCKI and Mr. Fine, could you describe in a little more detail how FRA and the FHWA are coordinating to reduce the likelihood of grade crossing accidents?

Mr. JUDYCKI. We have been working for some time on rail grade crossing safety improvement programs. From a funding perspective, I think it is important to note that of the 10 percent safety set-aside of surface transportation program dollars, in any particular year about \$150 million of that is dedicated toward rail grade crossing operations and improvements in the States.

In addition to that, regular Federal-aid funds, obviously, are not only eligible but are encouraged to be used for crossing improvement.

We have been working together more recently, certainly, to carry out the Secretary's priority on safety in dealing with rail grade crossings to put together the action plan Mr. Fine mentioned earlier. But I think historically there has been a very close relationship. For instance, we evaluated the causes of accidents and were responsive to the needs for sign, signal, and marking improvements at crossings.

Reducing railway-highway grade crossing accidents, which now account for some 600 fatalities per year, is certainly tremendously important to us as we move toward carrying out the action plan that Mr. Fine mentioned.

Mr. FINE. We are looking at a lot of things under the action plan. One of those is to try to take a corridor approach to improving the grade crossing problem, to try to use the money in a better way to look at maybe closing some crossings, maybe doing some low-cost improvements along the corridor on some other crossings, and using the money that is available for automated warning devices where they can best be used rather than looking at these improvements on a one-crossing-at-a-time basis.

As I mentioned, we are looking to increase crossing closures where there are alternatives. That is always a difficult problem at a local level. As I mentioned earlier, we are looking at a lot of research projects. The educational efforts we feel are very important in support of Operation Lifesaver, Incorporated and at the State and local level. We have been talking to NHTSA about some involvement in that regard.

Yesterday, FRA had a hearing on a notice of proposed rule-making on inspection, testing, and maintenance regulations for automated crossings and to require the railroads to fix or repair without undue delay the automated devices at those crossings. We are concerned about credibility problems to motorists. If there is a false activation—and we found that there are approximately 46,000 of those a year—we might be giving a bad message to motorists. Maybe that is why so many people are going around the gates. As I said we have a regulatory initiative in that regard.

Also, this year we will be adding 16 additional inspectors. This is the first time we have had grade crossing inspectors out there. There will be eight program managers for the grade crossing program to work at the State and local level. And there will be eight additional signal and train control inspectors to look at the automated warning devices.

In addition, we anticipate over 20 State inspectors joining the program.

Mr. JUDYCKI. Let me just add to that, if I may.

Mr. Fine mentioned Operation Lifesaver. We collectively have about \$400,000 a year that goes to Operation Lifesaver to enhance safety at crossings. Operation Lifesaver is a very important volunteer-based organization at the grassroots level in all of your States that does fine work in this regard.

In addition, we have recently focused some attention on working, for instance, through Operation Lifesaver, to address commercial vehicle operations at crossings. For instance, we are working to create a trucker-on-the-train program where motor carrier executives would actually accompany train engineers to gain an appreciation as to what they are faced with from the basis of the industry. Trucker-on-the-train is based upon a program that has been in existence previously that has worked very well.

Also, in the future technology is going to play a very important role. I mentioned IVHS. On the technology side we are going to be looking at some proximity alert systems for crossings. We have solicited from industry in this country the systems that they have to evaluate. We will likely be looking at the evaluation of those systems first on emergency vehicles, policy vehicles, school buses, and so forth. But the concept is that the technology is available that should be evaluated that in fact would in the vehicle provide an alert system for a crossing hazard.

Mr. BORSKI. Mr. Judycki and Mr. Schulman, in your testimonies, you both mentioned IVHS. How are you coordinating your efforts to apply IVHS technology to improve safety?

Mr. JUDYCKI. Mr. Chairman, within the Department, the IVHS program—and I will address the overall coordination of the IVHS program because that also gets at the heart of safety, which is one of the major objectives of the IVHS program.

Within the Department, we have been operating with a coordinating committee that has developed policy and budget and programs for the IVHS program to deliver an IVHS program that is departmental in nature. That coordinating committee has operated at the Deputy Administrator level.

There is a multi-modal working group in the Department that is made up of all the administrations that are involved in the IVHS program addressing projects and programs for IVHS that provide advice to that coordinating committee. We are now in the process within the Department of transitioning to a joint program office for IVHS that will be located within the Federal Highway Administration, but will serve as the agent for the Department to execute the IVHS program.

Just as important as coordinating and working within the Department, however, to reach our safety objectives for IVHS are our partners outside of the Department—whether it be other Federal agencies, the States, or our advisory committee for IVHS, IVHS AMERICA. IVHS AMERICA has a Benefits Evaluation Committee. One of their charges is to look at the benefits of IVHS toward safety, one of our principal objectives.

Within the Department, we are working with the Volpe Center, which is part of RSPA, on developing a framework for the IVHS evaluation of benefits. That framework will in fact include safety as one of the major evaluation criteria. RSPA has been very much involved in our internal coordinating groups and mechanisms to deliver a departmental program for IVHS.

Mr. SCHULMAN. Within the multi-modal program of IVHS, we have a component that we have called Advanced Public Transportation System, or APTS. The particular purpose of that program is to apply all the advanced communication technologies to the more efficient and safer operation of public transportation.

One major component of that program is automatic vehicle location, which tracks the actual routing of the bus through urban or rural networks. GPS is at the heart of those vehicle location systems. Another new technology that is being brought aboard buses at this particular time is emergency warning system silent alarms. Obviously, when an alarm is sounded, the important thing is to know where the vehicle is. GPS is at the heart of that location function so that the proper individuals and proper police forces can be targeted to the precise location at the bus.

Also in accidents, it is important to know the location of the vehicles. Again, the GPS is the heart of the system to locate where that accident has taken place so that the appropriate fire, medical, or police can be made available.

We see the GPS as a central element. There are alternates to GPS as we deal in the urban area, but as we try to expand these systems into the rural communities, the GPS is the system that we must rely on. So we see it as very important aspect. The whole program has geared itself to better safety in stations, at bus facilities, et cetera. This is a very important component of providing better customer service to transit users.

Mr. BORSKI. Ms. McMurray, in your testimony you mentioned hazardous materials regulation as an example of a successful cross-modal safety effort. Yet you note that your responsibilities do not

include bulk vessels. As a result, when you provided data to our staff on damages caused by hazardous material releases, the data for 1989 showed total damages from waterborne hazardous material incidents to be \$39,900 despite the fact that the grounding of the Exxon Valdez that year resulted in damages of more than \$2 billion.

Why don't RSPA and the Coast Guard develop a common database on damages from hazardous material releases?

For that matter, Ms. McMurray, the data you provided didn't include hazardous material releases from pipelines, which you regulate yourselves. Why aren't they part of the same database?

Ms. McMURRAY. We are working to include the pipeline releases in the program of the Hazardous Material Information System. We are all in the same family, so hopefully we are working very collegially to do that.

As I mentioned and you pointed out, we do not regulate the transportation of hazardous materials in bulk vessels. The Coast Guard maintains that database. I would agree that there may be opportunities for the Coast Guard and RSPA to work to incorporate both property damage, fatalities, and injuries into the HMIS.

I see Admiral Henn nodding. So in the spirit of intermodal co-ordination, I would expect that we will be working along those lines.

He may also have an observation about bulk vessels and Hazmat data.

Admiral HENN. I agree totally with Ms. McMurray.

I think we are seeing within the Department an ongoing process of not only sharing data, but combining our data so that we can use it across modes. I think the new transportation system data collection group will fare us very well in that area. But obviously, the Coast Guard and RSPA have worked together over a number of years very closely with regard to transportation of hazardous materials both here at home and also setting standards internationally so that the United States wasn't written out of the world-wide market because of technicalities.

We will continue to do that. I think there is a good story there and I think it is a win-win for the whole Department.

Mr. BORSKI. Mr. Judycki, in your testimony you discussed the many studies that FHWA is conducting on the operator fatigue issue. While I think it is a good idea to study this issue, none of your studies appear to address the issue of enforcement.

Just yesterday, the Journal of Commerce published an article in which one trucker was quoted as saying, "The logbooks that the DOT uses to enforce hours of service regulations are a joke. The DOT knows it."

The National Transportation Safety Board reports that almost one-third of truck fatalities are due to fatigue. Of truck drivers themselves, 63 percent believe that other drivers routinely violate the hours-of-service regulations.

Do you think your enforcement is adequate? Are the logbooks a joke? And what are you doing to improve enforcement of hours of service regulations? Are you considering any rulemaking to improve enforcement?

Mr. TRENTACOSTE. Relative to rulemaking, we will hold off until we complete more of the studies in terms of the operator fatigue and what those studies reveal. We are not satisfied with the enforcement levels and we are working with our own Federal field investigators to improve their enforcement of the hours-of-service regulations as they visit carriers. We are also working with the States through the Motor Carrier Safety Assistance Program to provide more expertise to them.

We are setting up databases so that the inspectors out in the field and their supervisors will be able to know which of the investigators are writing up violations on hours-of-service. If there are investigators that don't appear to be finding any hours-of-service violations, they may need additional training.

We are developing a whole training module that is set up as on-the-job training and remote training so that as we identify investigators and inspectors out there that need additional training, we can deliver that in a very efficient way.

I think the IVHS is going to provide some of the technology that will allow us to improve the enforcement of hours of service as well as making sure that drivers who are put out of service for exceeding the hours—that that is enforced before they are allowed to continue. We will have some operational tests in that area within the next year.

Mr. BORSKI. Thank you, sir.

Do the accident reports you receive on truck accidents specify the exact type of vehicles that are involved? For example, in your analysis of the data, can you differentiate between a regular double trailer truck and a longer combination vehicle, such as turnpike doubles and Rocky Mountain doubles?

Mr. TRENTACOSTE. The 22 data elements that we worked out with the National Governors Association does have information about the type of vehicle. I can't answer and will have to report back for the record as far as whether it will be able to differentiate between the doubles and the triples. I do know that there are combination vehicles in there, but I do not know the level of detail that we have in that report.

I will have to get back for the record on that one.

Mr. BORSKI. It may be helpful to have that type of information for us.

[The following was received from Mr. Trentacoste:]

The following is a copy of the key National Governor's Association (NGA)-recommended accident data elements. Currently, the NGA data elements do not provide for differentiation between 28-foot doubles and "long doubles" such as Rocky Mountain or Turnpike doubles. Triples are, of course, always longer combinations vehicles (LCVs) and represent a separate category on the vehicle configuration portion of the accident elements. Triples can be easily determined from the NGA data elements when the information is properly submitted. Sometimes a "triple" on closer inspection turns out to be a double where the accident reporter counted the converter dolly as a separate vehicle.

The FHWA believes that the NGA accident data elements should not be changed until all States have adopted them so as not to delay nationwide implementation of the accident form. Currently, 34 States supply some or all of the NGA accident data elements to the FHWA. Nineteen States supply all of the elements and 15 supply some of the elements.

Covering LCVs in more detail will be the first change pursued after all States are using the elements. In the interim, the FHWA is beginning an LCV accident study using 100 randomly-selected carriers that operate LCVs. Depending on the results of the analysis an additional 100 randomly-selected carriers may be added to the study.

**Figure 2**  
**Key NGA-Recommended Accident Data Elements**  
**(Elements applicable only to truck and bus accidents)**

**1. CARRIER IDENTIFICATION**

- 1a. Name
- 1b. Mailing Address:      Street or P.O. Box  
 City  
 State (two-letter code)  
 Zip Code
- 1c. Source of Name (please check)
  1. Shipping Papers (truck) or Trip Manifest (bus)
  2. Side of Vehicle
  3. Driver
- 1d. Carrier's Identification Numbers
 

US DOT (6 digits)  
   ICC MC (6 digits)

If none of the above  
   State (indicate state and number)  
   No number

**2. VEHICLE CONFIGURATION**

1. Bus (seats for more than 15 people, including driver)
2. Single-unit truck (2-axle, 6-tire)
3. Single-unit truck (3-or-more axles)
4. Truck/Trailer
5. Truck Tractor (bobtail)
6. Tractor/Semi-trailer
7. Tractor/Doubles
8. Tractor/Triples
9. Unknown Heavy Truck, cannot classify

**3. TOTAL NUMBER OF AXLES ON VEHICLE, INCLUDING TRAILERS**

**4. CARGO BODY TYPE**

1. Bus (seats for more than 15 people, including driver)
2. Van/Enclosed Box
3. Cargo Tank
4. Flatbed
5. Dump
6. Concrete Mixer
7. Auto Transporter
8. Garbage/Refuse
9. Other

**5. HAZARDOUS MATERIALS INVOLVEMENT**

5a. Did this vehicle have a hazardous materials placard? (yes, no)

Answer the following questions ONLY if response to 5a. is yes.

5b. Indicate from the hazardous materials placard:

(1) 4-digit placard number or name taken from the middle of the diamond or from the rectangular box (yes, no)

(2) 1-digit placard number from bottom of diamond (yes, no)

5c. Was hazardous cargo from the placarded truck released? (yes, no)

(Do not count fuel from the vehicle fuel tank.)

**6. GROSS VEHICLE WEIGHT RATING**

## 7. SEQUENCE OF ACCIDENT EVENTS (for this vehicle)

Sequence	Event
1 2 3 4	Ran Off Road
1 2 3 4	Jackknife
1 2 3 4	Overturn (Rollover)
1 2 3 4	Downhill Runaway
1 2 3 4	Cargo Loss or Shift
1 2 3 4	Explosion or Fire
1 2 3 4	Separation of Units
1 2 3 4	Collision Involving Pedestrian
1 2 3 4	Collision Involving Motor Vehicle in Transport
1 2 3 4	Collision Involving Parked Motor Vehicle
1 2 3 4	Collision Involving Train
1 2 3 4	Collision Involving Pedalcycle
1 2 3 4	Collision Involving Animal
1 2 3 4	Collision Involving Fixed Object
1 2 3 4	Collision Involving Other Object
1 2 3 4	Other

## Other NGA-Recommended Data Elements

(Those that would be applicable to any motor vehicle accident)

1. REPORTING AGENCY
2. AGENCY ACCIDENT NUMBER
3. OFFICER BADGE NUMBER
4. DATE OF THE ACCIDENT (month/day/year)
5. TIME OF THE ACCIDENT (hours:minutes; a.m./p.m.)
6. ACCIDENT LOCATION:   
 State (two-letter code)  
 County  
 City or Township
7. TOTAL NUMBER OF VEHICLES INVOLVED IN THE ACCIDENT
8. DRIVER IDENTIFICATION  
 8a. Truck or Bus Driver's Name (last/first/middle)  
 8b. Driver's License Number  
 8c. Driver's License: State (two-letter code)  
 8d. Driver's Date of Birth (month/day/year)
9. TRUCK/TRUCK TRACTOR IDENTIFICATION  
 9a. Vehicle Identification Number (VIN)  
 9b. Tractor/Truck/Tractor Vehicle License Number (state and number)
10. TRAFFICWAY  
 1. Not Physically Divided (2-way trafficway)  
 2. Divided Highway, Median Strip, *Without* Traffic Barrier  
 3. Divided Highway, Median Strip, *With* Traffic Barrier  
 4. One-Way Trafficway
11. ACCESS CONTROL  
 1. No Control (unlimited access)  
 2. Full Control (*only* ramp entry and exit)  
 3. Other
12. WEATHER CONDITION  
 1. No Adverse Condition  
 2. Rain  
 3. Sleet, Hail  
 4. Snow  
 5. Fog  
 6. Blowing Sand, Soil, Dirt, or Snow  
 7. Severe Crosswinds  
 8. Other  
 9. Unknown

## 13. ROAD SURFACE CONDITION

1. Dry
2. Wet
3. Snow or Slush
4. Ice
5. Sand, Mud, Dirt, or Oil,
6. Other
7. Unknown

## 14. LIGHT CONDITION

1. Daylight
2. Dark—Not Lighted
3. Dark—Lighted
4. Dawn
5. Dusk
6. Unknown

## 15. APPARENT DRIVER CONDITION

1. Appeared Normal
2. Had Been Drinking
3. Illegal Drug Use
4. Sick
5. Fatigued
6. Asleep
7. Medication
8. Unknown

Mr. BORSKI. The new alcohol and drug rulemaking requires pre-employment testing of alcohol use. Do you think it is likely that an alcohol abuser would actually show up drunk for pre-employment screening? What is the value of this requirement compared with the cost to the trucking and other transportation industries of implementing it?

Mr. TRENTACOSTE. The Department has just issued the regulations on the alcohol and drug testing on February 15th. They go into effect March 17th and are implemented over the next several years.

Relative to pre-employment testing, it was determined that that was one of the requirements—the combination of the mandate from Congress as well as looking at the various options—that that should be one that is included in there. I tend to agree that if an individual showed up at an interview drunk that it may be more of an intelligence test than anything else.

We have heard from carriers that applicants do show up after having consumed alcohol as well as in some cases just recently taken drugs.

Mr. BORSKI. Could you imagine them being hired in that situation?

Mr. TRENTACOSTE. I would certainly hope not.

Mr. BORSKI. You mentioned that since the implementation of the Commercial Driver's License program, 6.6 million CDLs have been issued. Can you tell us how many licenses have been denied?

Mr. TRENTACOSTE. No, I cannot. I don't think the States are collecting that information. As an applicant goes in to take a test, if they fail, then they have the opportunity to come back. I don't think we can check and report back in the record whether in fact the States are collecting information about the number of drivers who have not received a license. We do have some early statistics on failure rates, and that may be helpful for the committee to have.

[The following was received from Mr. Trentacoste:]

The following is a State-by-State comparison of Commercial Drivers' License (CDL) general knowledge and special endorsement test results as of January 1992. Since applicants are not restricted as to the number of times they can take the CDL tests, applicants who fail the test can keep taking it until they pass.

States are not required to keep statistics on the number of CDLs denied. Most States do not keep information on the number of denials or the reasons for denials.

## State CDL Knowledge Test Results - Percentage Passing

State	Overall	General	Air Brake	Combo Truck	Tank Truck	HasMat	Double/ Triple	Pass.
Alabama	82%							
Alaska	82%	79%	87%	86%	92%	75%	77%	81%
Arizona	na							
Arkansas	86%							
California	na							
Colorado	79%	77%	82%	81%	86%	70%	79%	79%
Connecticut	77%	84%	79%	84%	77%	80%	80%	73%
Delaware	72%	67%	74%	78%	81%	69%	76%	75%
Dist. Columbia	56%							
Florida	78%	74%	76%	81%	86%	74%	78%	75%
Georgia		73%	na	na	76%	66%	80%	80%
Hawaii	79%							
Idaho	87%	90%	89%	85%	93%	82%	82%	84%
Illinois	76%	74%	86%	88%	89%	79%	84%	81%
Indiana	86%	89%	88%	89%	86%	78%	82%	85%
Iowa	77%	79%	77%	81%	83%	64%	78%	76%
Kansas	na							
Kentucky	75%	88%	92%	88%	91%	80%	84%	94%
Louisiana	69%	72%	77%	74%	69%	65%	67%	
Maine	89%	89%	88%	93%	91%	86%	91%	85%
Massachusetts	78%	81%	82%	81%	84%	65%	75%	72%
Maryland	70%	62%	75%	78%	80%	65%	71%	71%
Michigan	66%	67%	66%	67%	76%	58%	63%	66%
Minnesota	72%	72%	72%	77%	76%	63%	69%	64%
Mississippi	74%	74%	68%	72%	77%	66%	74%	81%
Missouri	72%	71%	73%	77%	77%	65%	73%	66%
Montana	77%	80%	80%	79%	79%	71%	74%	67%
Nebraska	82%	81%	83%	84%	87%	75%	82%	78%
Nevada	85%	87%	86%	87%	86%	73%	83%	84%
New Hampshire	85%							
New Jersey	91%							
New Mexico		78%	74%	84%	82%	81%	80%	70%
New York	90%	96%	98%	96%	98%	97%	93%	92%
North Carolina	82%	87%	83%	82%	88%	73%	91%	74%
North Dakota	81%							
Ohio	80%	82%	85%	83%	84%	69%	75%	78%
Oklahoma		88%	89%	88%	89%	79%	83%	84%
Oregon	85%	84%	87%	86%	93%	72%	85%	81%
Pennsylvania	79%	78%	83%	83%	88%	65%	77%	83%
Rhode Island	92%	92%	93%	95%	95%	95%	88%	90%
South Carolina	59%	59%	60%	59%	56%	49%	47%	61%
South Dakota	89%							
Tennessee		93%	93%	94%	93%	90%	91%	94%
Texas		68%	66%	71%	75%	67%	66%	66%
Utah		87%	88%	87%	89%	80%	86%	89%
Vermont	91%	94%	92%	89%	95%	84%	89%	87%
Virginia		84%	84%	91%	60%	87%	91%	93%
Washington	89%							
West Virginia	90%	89%	95%	90%	90%	83%	86%	94%
Wisconsin	77%	78%	80%	79%	85%	63%	75%	68%
Wyoming		88%						

## NOTES:

- Data available as of January 1992 (na = Data not available)
- Due to variations in how States report passing rates, only general comparisons or trends should be drawn from the above data. For example, some States count all tests administered regardless of the number of times an individual takes the test before passing it, while other States only count the number of individuals passing regardless of the number of times the test was taken before passing and other variations.

Federal Highway Administration  
Office of Motor Carrier Standards

Mr. BORSKI. We are particularly interested in the driver being turned down because he already had a CDL in another State or that he or she had been disqualified in another State.

Mr. Bischoff, our staff recently asked the FHWA for data on fatalities resulting from deficient bridges and were told that no such data were available. Our review of the Fatal Accident Reporting System shows that it reports on accidents occurring at various locations such as intersections, driveways, and railroad crossings, but it does not show any data on accidents occurring on or near bridges.

Would it be possible to extend FARS to gather data on accidents occurring at bridges?

Mr. BISCHOFF. I am not aware that it didn't include that. I guess off-hand I have no idea why it wouldn't. It should capture all fatalities that occur on public highways. We will certainly check into that and let you know.

Mr. BORSKI. Thank you, sir.

[The following was received from Mr. Bischoff:]

FARS contains data on a census of fatal traffic crashes within the 50 States, the District of Columbia and Puerto Rico. To be included in FARS, a crash must involve a motor vehicle traveling on a trafficway customarily open to the public and result in the death of a person (occupant of a motor vehicle or a non-motorist) within 30 days of the crash.

In FARS, information is collected which clearly identifies fatal crashes in which the First Harmful Event for the crash or in which the Most Harmful Event for some vehicle was a collision with a bridge. Identifiable components are Bridge Rail, Bridge Parapet End and Bridge Pier or Abutment.

The number of fatal crashes from 1988-1992 for which the First or a Most Harmful Event was a collision with one of these components is as follows:

1988 .....	614
1989 .....	577
1990 .....	634
1991 .....	605
1992 .....	585

All fatal crashes in which the First Harmful Event or Most Harmful Event for a vehicle was a collision with a bridge can be identified in FARS. However, FARS is unable to detect the mere presence of a bridge at the scene of a crash. If the crash occurred on, under or near a bridge without any bridge component being involved in a Harmful Event, then the presence of the bridge is not recorded.

You discussed in your testimony the application of IVHS technology to highway safety, including smart cruise controls, driver alert monitoring systems, and so forth. Could you describe some of these technologies in more detail for us?

Mr. BISCHOFF. Sure.

I think one of the things Mike alluded to a moment ago was that we are doing research on drowsiness, psychophysiological means for determining drowsiness. We have looked at on-board vehicle measurement devices such as steering wheel reversals, lane proximity maintenance, but those have proven to be not sufficiently reliable. We have too many false positive responses.

So we are now looking at eye closures and different means of detecting drowsiness, smart cruise control, proximity sensors to avoid rear-end and intersection collisions—these are the kind of things we can implement on the vehicle now before we truly move to integrated vehicle highway systems. We are exploring all the technology.

Mr. BORSKI. The DOT has recently issued a final rule requiring expensive drug and alcohol testing of truck drivers. Could you tell me what your data shows are the safety effects of drug use by motor vehicle drivers?

Mr. BISCHOFF. The recent study we did showed that drugs alone were involved as a causal factor in less than 1 percent of crashes. The significant contribution of drugs comes in combination with alcohol, which is probably something more in range of 6 to 15 percent.

As a result of that study, I think we have learned that possibly drugs are implicated alone in a lot lower frequency than we had previously anticipated. We are undergoing a review in the agency right now on allocation of resources to those programs.

Mr. BORSKI. Thank you, sir.

Mr. Schulman, Section 3026 of the Intermodal Surface Transportation Efficiency Act of 1991 called for a report on safety conditions in mass transit. The report to Congress is to contain actions taken to identify, investigate, and correct hazardous or unsafe conditions, summarize passenger and employee-related deaths and injuries, and recommend necessary legislative or administrative changes.

The due date for that report was in June of 1992. Can you give us a brief description of the report's tentative findings and when you expect it to be transmitted in final form?

Mr. SCHULMAN. The report is in final clearance within the Department at this point. It probably is a little bit presumptive for me to guess what its final version would be. But I would point out that—as I indicated in my testimony—FTA has recently had some substantial increase in its regulatory authority in the area of drugs and alcohol and also in the requirement for State safety plans and the responsibility for safety to be developed at the State level.

We believe that that legislation will be implemented in a rule probably by this summer. It will take some time to put it into place and for us to assess its effectiveness. We believe it will be very effective in addressing and assessing the safety issues that do exist or may exist in the transit industry. Some of the drafts I have seen up to this point were not suggesting any additional legislative requirements at this particular point.

But as I said, that final decision must be made at the departmental level.

Mr. BORSKI. FTA has undertaken only six safety investigations in the last 10 years. You mentioned in your testimony that FTA has had a limited safety role in the past. But there are many—including many people in the city of Philadelphia following the accident on the Frankfurt Line—who believe that FTA should play a more significant role in safety issues.

That feeling was reflected in ISTEA, which directed FTA to issue regulations requiring the establishment of State safety oversight programs to investigate hazardous conditions before accidents.

Do you believe that FTA now has sufficient statutory authority to ensure an adequate level of safety on the Nation's transit system?

Mr. SCHULMAN. I think that the statutory authority that you just mentioned will give us what is necessary and appropriate within the mandates of the Federal Transit Administration. The new regu-

latory authority will require that States designate an agency that will be responsible for the safety of all rail systems that are within its jurisdiction that are not under the regulatory authority of the FRA. They will be required to develop the standards for such system safety plans. They will be required to mandate that these plans be developed by their individual transit agencies.

The agencies will be responsible for developing and implementing these plans. They will be responsible for identifying hazardous conditions, for identifying action plans to correct these conditions. They will be responsible for auditing themselves twice a year and reporting to this State agency.

The State agency, in turn, will be responsible on a biannual basis for auditing what is going on within its State in its transit properties. They will have the authority to investigate accidents, as well as investigating hazardous conditions.

We think that puts in place a practice that will significantly address the safety need and the assessment of the quality of safe operations within transit. As I said just a few minutes ago, we think we need to put that in place and make a determination as to whether our assumptions are correct.

I think it would be safe to say that the question of the Federal role as opposed to a non-Federal role at the State was debated in the construct of that particular piece of legislation. We are very comfortable with the States having that responsibility. We think that it will achieve its intended purpose.

Mr. BORSKI. The Nation's transit industry has an extremely good safety record. The fatality rate for transit buses is the lowest of any mode and the safety record for transit rail is also very, very good.

Could you characterize for us the accidents that do take place in the transit industry and what are the most common causes of those accidents?

Mr. SCHULMAN. As I indicated, we do not have statistical data on the causes of accidents. Most of the accidents that are occurring have to do with errors in judgment of operators and in some cases impairment of those operators for a number of reasons. But that is somewhat anecdotal at this particular point because we are trying to build our data collection efforts to more fully understand what are causing the accidents, incidents, and injuries in the transit properties.

So it is difficult for me to give you factual information. I wish I could submit it for the record, but we just aren't going to have the facts on that at this particular time.

Mr. BORSKI. Thank you, Mr. Schulman.

Mr. Huettner, the safety record of Part 121 airlines is the envy of the world. But the safety record of commuter airlines and air taxis is less impressive. And general aviation accidents remain high.

You mentioned in your statement upgrading training requirements for commuter pilots. What else is FAA doing to make these parts of the aviation industry safer?

Mr. HUETTNER. Mr. Chairman, we have been working for quite a number of years in upgrading commuter safety, especially. We have included in the regulations requirements for a cockpit voice recorder, flight data recorders, deicing programs, TCAS or Termi-

nal Collision Avoidance Systems, Ground Proximity Warning Systems—we have had a very aggressive program over a number of years which has in fact assisted in bringing the numbers down in those areas.

This new initiative that I think is probably one of the most significant, and is the training—which addresses human factors, our primary cause of accidents in that area, in fact, throughout aviation.

Mr. BORSKI. Thank you.

Ms. McMurray, last year after the Colonial spill, there were frequent references to the need to get pipeline operators to make greater use of internal inspection devices—smart pigs—to inspect their pipeline and detect flaws that could lead to ruptures.

At that time, you were still in the process of implementing regulations to require the greater use of these devices as called for by the 1992 Pipeline Act. Can you update us on the status of your regulatory programs to require greater use of the smart pigs?

Ms. McMURRAY. I would be happy to.

We issued a notice of proposed rulemaking very close to the completion of that hearing. We have closed the comment period on the ANPRM and we are examining comments and are moving toward issuing a final rule. We would expect by mid-1994 to have that rule issued in its final form.

Mr. BORSKI. As you know, the Sanitary Food Transportation Act of 1990 was passed a little more than 3 years ago. Could you update me on what actions you have taken to implement the act and specifically what funding and staffing resources have been allocated to implement and enforce it?

Ms. McMURRAY. Yes, sir.

We did have an ANPRM issued on the Sanitary Food Transportation Act. We held two public meetings during June in the local area and in September we held public meetings in Chicago. Those were fairly well attended. I think we received over 175 comments.

As you are probably aware, in our fiscal year 1995 budget Secretary Peña has proposed a repeal of certain aspects of the Sanitary Food Transportation Act, recognizing that in the Vice President's National Performance Review the responsibility for food safety between the Department of Transportation and the Food and Drug Administration, may require slightly more review. We believe that because much of the evidence regarding back-haul of food in vehicles that transported hazardous materials is very scant, we simply do not have a very strong sense that this is a widespread problem.

We have been unable to ascertain through data and through reporting that sanitary food back-hauling is happening with any regularity. The Administration, in determining where it should place its limited resources, has proposed to repeal certain parts of the Sanitary Food Transportation Act.

We would be happy to talk to this committee in more detail about that action.

Mr. BORSKI. Thank you very much. I am personally very interested in that myself.

At our first hearing on intermodal transportation safety, Secretary Peña stated that DOT is reshaping RSPA's hazardous mate-

rial responsibilities to focus more on liquid substances rather than on natural gas. Why is your agency changing its focus? What is the status of this reorganization? How will your agency's resources be shifted to meet these needs?

Ms. McMURRAY. As I mentioned earlier in my testimony, the Colonial accident—which was a very unfortunate accident—forced the agency to review the balance, if you will, of its oversight of the natural gas pipeline program and the hazardous liquid pipeline program.

Because most deaths and injuries occurred from accidental releases of natural gas and other hazardous gasses, the focus of the pipeline safety program historically had been on its regulation and on accident mitigation. The northern Virginia accident suggested to us that we needed to rethink the way we regulated pipelines in this country, recognizing the devastation and environmental degradation that can occur from unintentional releases of oil pipelines.

To that end, the Secretary asked us if we would do a very bottom-to-top review of the way we have deployed our inspector resources. We came up with a five-point plan to focus more of our energy on inspection and regulation of hazardous liquid pipelines.

We are accelerating five important rulemakings. You mentioned the smart pig rule. There are others as well in that group that we have identified to be a priority. We are working to finalize those rules.

We also have determined that we need to focus more inspection units and targeted units on new construction. Some of the findings from the Colonial accident suggested that had Federal and State government resources been available to inspect the construction of that pipeline, perhaps some of the rock and other damage to the pipeline might have been avoided. So we are looking at targeting our inspection resources to new construction as well as moving to a 60 percent inspection rate on hazardous liquid pipelines.

One of the cornerstones of our pipeline program is the encouragement of State participation in actual enforcement of the Federal pipeline safety regulations. We have found that in the natural gas side of the pipeline program we have more than 48 States who participate very actively. However, on the liquid pipeline side, the success story is not quite as dramatic. We currently only have 10 States participating in regulatory authority over hazardous liquid pipeline inspections and enforcement.

One of the aspects of our program review is to encourage more States to become partners with RSPA in hazardous liquid pipelines. We are targeting every year for the next 10 years three to five additional States so that we might encourage their ownership, if you will, of the number of hazardous liquid pipelines in their State.

I am happy to report that many States—including the State of Virginia—have recently enacted strengthened one-call programs. I had mentioned these earlier in my testimony. We find the number one reason for pipeline accidents is third party damage, excavation damage done by folks other than pipeline operators. So we are working vigorously with other States to encourage them to adopt such legislation and put some teeth in their local enforcement efforts.

There are a number of other things I could mention. We also are working with the Coast Guard on the implementation of the Oil Pollution Act, identifying environmentally sensitive areas where accidental releases of oil from pipelines might damage the environment. That is a very aggressive program that we are undertaking with them. We also think that implementing the alcohol rule and going to our risk-based program assessment tool will enable us to do a better job with hazardous liquid pipelines.

We have the full commitment of the Secretary. We believe that the States have signed and come on-board with us, recognizing that they need to have more jurisdiction over oversight of hazardous liquid pipelines. Hopefully, in a few years we will have more successes to report.

Mr. BORSKI. Mr. Fine, let me first commend you on your testimony, which I think lays out a well thought-out strategy for safety improvement. In particular, given that 95 percent of your fatalities are due to grade crossings and trespassing, it seems appropriate—though perhaps a bit overdue—that you recently made this a technical discipline for your field staff.

I did want to ask you a question about the grade crossing accident in Florida last November when an Amtrak train hit a truck trailer carrying an overweight transformer over a private grade crossing.

What is your strategy for preventing grade crossing accidents at private grade crossings like this?

Mr. FINE. A major initiative under the action plan—and I think Mike would be best to address this—is to deal with the truckers in terms of these types of problems. That, I believe, was also a traffic problem at that crossing. Dennis might want to address that.

In terms of private crossings, in general, that becomes a rather contentious area—obviously—in terms of trying to close some of them and do something about it in terms of getting them funding. We are trying to deal with that issue. We had a public meeting about a year ago and we thought we would have some guidelines out. We did not get a good reaction to that.

It is a very, very difficult issue and we have quite honestly just recently in the last year or so gotten into that area. We did not pay a whole lot of attention to the private crossing issue until then. So it is more exploratory at this point to see just how far we can go.

Mr. TRENTACOSTE. We have redoubled our efforts as we visit carriers and as the State investigates and visits motor carriers to provide education and technical assistance to them on grade crossings. So we have instituted that.

We have developed what is called an "On Guard" that is in the process of being published and will be mailed out to the 275,000 motor carriers that are on our census. We have developed some ads that we are going to be putting in various trade press and other literature that will appeal to motor carriers about the dangers of grade crossings and to make sure that they are following the correct procedures in the crossing.

Mr. JUDYCKI. I would just mention that we have also opened up communication with the State departments of transportation as a result of the earlier Florida crossing accident, which happened to be in the vicinity of a work zone where traffic had actually backed

up across the crossing. In that particular case, certainly there needed to be increased sensitivity to the construction zone causing a back-up across the crossing.

After the NTSB investigation and so forth, we did in fact make a change in our manual, the national standard on traffic control devices to assure that there was a sensitivity on the part of the departments of transportation and local governments that there was a special need to be alert in work zones that are close to rail grade crossings.

In addition, in that particular case, we did get an alert out to all our field offices as well as the State departments of transportation to be alert in the future for those sorts of situations.

Mr. FINE. I might mention in further response that it is very difficult to deal at a national level with the private crossing issue. Each of those crossings must be looked at at a local level. That is why it became very difficult from our point of view when we issued guidelines. It is very, very difficult to issue generic guidelines that would apply. You need to look at each individual case. If there is a crossing that literally divides a farmer's property and that is the only way that he has access, it is very difficult for us back in Washington, D.C. to dictate to that individual. We need somehow to get local attention brought to bear on this.

Mr. BORSKI. Regulating the safety of railroad bridges, does the FRA take into account the possibility of the bridge being rammed by runaway commercial vessels and barges? Are there any specific standards intended to protect the bridge from such conditions?

Mr. FINE. I can answer what we are doing. I think those standards would be Coast Guard regulations.

There are 80,000 railroad bridges in the country. We have trained 44 of our people to go out and survey what is going on in terms of the maintenance of those bridges to make sure that there isn't a problem with the bridge itself. We found on the larger railroads that the maintenance practices are very good. There are some spotty problems on some of the smaller railroads that we are dealing with as far as the maintenance of the bridges.

As far as ramming them from a waterborne craft, that would not be within our jurisdiction. We are looking for ways to determine whether or not the crew could be alerted, obviously, to misalignment in the track. We are looking at different technologies and trying to find something that is cost beneficial that is either out there now or is emerging as a new technology.

It is a very difficult program from a technological standpoint. Where do you draw the line as far as sensitivity? If you are going to be able to alert the crew, then you need to know when it is misaligned. But at the same time, if that device is too sensitive, you are going to be putting a lot of trains into emergency unnecessarily.

Mr. BORSKI. I am really referring to the standards in which the railroad bridges are built and maintained. The possibility obviously exists that they could be hit by runaway vessels. Is there any standard that could take such a hit and keep the bridge intact?

Mr. FINE. We are in the process of finalizing a bridge report, which I would be glad to send up to you.

Mr. BORSKI. Thank you, sir.

You stated earlier that only \$400,000 out of FRA's \$44.4 million in fiscal year 1994's safety operations budget is allocated for Operation Lifesaver. Doesn't that seem—

Mr. FINE. Excuse me, Mr. Chairman, but that is \$100,000 of FRA money and \$300,000 of FHWA money. It is \$400,000 combined.

Mr. BORSKI. But doesn't that seem like a small amount given the large role of grade crossing accidents in railroad fatalities?

Mr. FINE. It is one of the approaches in terms of the educational aspects of that program. We certainly feel that it has benefit. I don't know where one would draw the line. It is very difficult to evaluate the effectiveness of those educational efforts.

We feel that it is a very beneficial program. Again, it is a matter of funding priorities.

Mr. JUDYCKI. I would support what Mr. Fine is saying. The amount of funding, Mr. Chairman, for Operation Lifesaver actually has increased over the last couple of years. The FHWA is now putting \$300,000 in. But again, we feel that the benefit being achieved is very important for those dollars we are putting in.

Mr. FINE. I might add that each of our inspectors is tasked with giving four crossing educational seminars or presentations each year. So it is not just Operation Lifesaver. The railroads put in quite a bit of money and effort into that program as well.

Mr. BORSKI. Admiral Henn, I am pleased to hear that you are working on more stringent regulations of tug barges. I am surprised, however, that you ever allowed tug barge combinations with thousands of tons of cargo aboard wandering about in the fog in the middle of the night with no charts, no compass, and no radar.

That strikes me as unsafe. Even a recreational boater would probably go out with a compass and charts.

Why would such a practice be allowed?

Admiral HENN. I think the investigation underway will look into why the operator was navigating that tug during those conditions. Obviously, if one is lost and doesn't know where his vessel is, it is prudent to anchor, to stop, and ascertain where you are. The investigation will show why that particular operator did not choose to do that.

If it shows that he was negligent, he will have to pay for that negligence.

Mr. BORSKI. Admiral, the case you cite in your testimony of the fishing vessel in the Chesapeake is a moving example of the value of many requirements in the Commercial Fishing Industry Vessel Safety Act. But the incident raises the question of why the vessel turned over and sank in the first place. Do you think you have sufficient authority to assure that fishing vessels are soundly designed, built, and maintained?

Admiral HENN. No, sir, I don't. I believe that the report that the Department sent to Congress—we believe that there should be an inspection regime for commercial fishing vessels. We took into account what industry advised us of through a Coast Guard fishing vessel advisory committee. We took note of what we had received in public hearings. And we took note of our own experience.

We looked at the fishing vessel community and decided there were really three tiers of fishing vessels. There are the very small operations, sometimes characterized as the "Mom and Pop" fishing

vessels where there are only three or four people aboard and they are very small vessels, less than 50 feet in length, operating fairly close to shore. For those vessels, we said that self-certification was the way to go, along with this additional licensing regime that we proposed.

Between 50 and 79 feet, we said that we were getting into a more substantial commercial operation, capabilities to go further offshore, and therefore, felt that there should be some sort of a third party certification, such as a classification society.

And over 79 feet, where a load line is required—now we are getting into large commercial operations, going offshore, larger vessel, larger crew, designed to go into more inclement weather conditions. The Coast Guard should be doing the inspection on that size vessel.

So we have proposed this option which provides a sliding scale both from an inspection standpoint but also from an economic standpoint, from the big operator with the big crews that goes far offshore down to what some people would characterize as the "Mom and Pop" operation.

We believe that is the way to go. We believe that should go hand-in-hand with the licensing regime we put forward in a separate report. Those together will make a substantial improvement in the overall condition of the fishing vessel fleet.

Mr. BORSKI. The NTSB has recommended that commercial vessels make greater use of bridge resource management analogous to the crew resource management that the FAA is encouraging airlines to use.

What progress have you made in encouraging the use of bridge resource management by commercial vessels?

Admiral HENN. Sir, we support that approach 100 percent. In fact, I convened an in-house focus group—known as Licensing 2000 and Beyond. It has completed its work and it indeed recommends that the Coast Guard should require bridge management training. We believe it should be for all masters and that we should use simulators as part of the training for this bridge management.

We put forward a rulemaking. We initiated one that would require all masters, mates, and pilots to attend a Coast Guard-approved course in bridge resource management training. So far, there are three courses that have been approved. One of the carrots we hold out in getting this bridge management training certificate is that it provides for a reduction in the amount of at-sea experience that you need to go to a higher license. Indeed, this recognizes that simulators are coming of age for training, as well as just a practice resource.

In addition to that, at the 25th session of the International Maritime Organization Subcommittee on Standards of Training and Watchkeeping, the United States—of which the Coast Guard heads the delegation—proposed that when we revise the STCW Convention, which will be done in an international convention in 1995, that we require masters and mates of all seagoing vessels of 200 gross tons or more and all pilots to obtain not only initial, but refresher training in bridge resource management training.

This is the way to go. Again, part of this team at DOT that we have going now—we looked at what FAA has come up with and

has been doing for a long time and said that it was time for the maritime world to start doing the same thing.

Mr. BORSKI. Thank you, Admiral.

We want to thank you all for the major efforts you had in coordinating your schedules for all of you to be here at once, for the testimony you have given us, and for the outstanding work that each of you is undertaking at the moment. Safety is a priority here under this Administration. You are all to be commended for it.

Thank you very much.

This subcommittee hearing is adjourned.

[Whereupon, at 12:40 p.m., the subcommittee was adjourned, to reconvene subject to the call of the Chair.]



PREPARED STATEMENTS SUBMITTED  
BY WITNESSES

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Statement of

**Donald C. Bischoff**  
Associate Administrator for Plans and Policy  
National Highway Traffic Safety Administration

March 2, 1994

Mr. Chairman and members of the committee:

I am pleased to have the opportunity to appear before you to discuss the planning, management, and coordination of the National Highway Traffic Safety Administration's (NHTSA) safety programs.

NHTSA's principal mission is to reduce traffic accidents and the deaths and injuries that result from them. We do this by carrying out several legislative mandates. Under the National Traffic and Motor Vehicle Safety Act of 1966, we promulgate Federal motor vehicle safety standards, conduct research and development, carry out compliance and safety defect enforcement activities, and provide consumer information. Under the Highway Safety Act of 1966, we set policies for and lead the nation's state and community highway safety program by establishing and setting priorities among the highway safety guidelines and assisting state and local government with their planning. This act also authorizes research, development and demonstration projects; technical assistance; and formula and incentive grants.

## **CRASH LOSSES ON U.S. ROADS**

Americans as individuals and in commerce make massive use of our highways. Unfortunately, this extensive use of our highways, and the extensive freedom we have in using the highways has a price. More than 94 percent of the human casualties in transportation are the result of motor vehicle crashes. Traffic crashes cost the nation:

- Nearly 40,000 lives and more than 5 million injuries, one half million of which require hospitalization;
- \$137 billion in medical costs, lost productivity, property damage, and transactional costs; and
- More than \$14 billion in direct medical care costs, \$3.7 billion of which was paid by public funds (primarily Medicaid and Medicare).

### **Data Collection and Analysis**

NHTSA is spending more than \$17 million this year -- nearly a quarter of our total contract budget and over 40 percent of our research and development budget -- on collecting data to document and analyze human and property losses on the Nation's highways. This permits the agency to identify how, where, and why crash losses are occurring so that countermeasures can be developed to address those losses.

Our major safety data collection programs are the Fatal Accident Reporting System (FARS) which provides a census of all fatal highway injuries in the U.S., the National Accident Sampling System (NASS) which collects both detailed information on a national sample of about 5,000 crashes a year and more general data on a national sample of about 45,000 crashes per year, and state crash data files that provide large amounts of data for general analyses. NHTSA has modified its NASS data collection program to include more data on factors leading to a crash.

#### **NHTSA's Primary Safety Goals and Priorities**

A primary goal of Secretary Peña's strategic plan is to "promote safe and secure transportation." To meet this goal, NHTSA has five top safety goals. They are to:

- Use the agency's resources effectively to further reduce the Nation's roadway fatality and injury rates and thereby reduce personal suffering, the Nation's health care cost, and other costs associated with death and injury.
- Work with state and local governments and other entities to help instill a strong sense of personal responsibility regarding safety among the Nation's drivers and pedestrians through education and enforcement. Included in these goals are:
  - Increase safety belt use to 75 percent by 1997
  - Reduce alcohol involvement in fatal crashes to 43 percent by 1997

- Conduct research and develop regulatory and other programs that advance motor vehicle technology and increase public safety. Such programs include Intelligent Vehicle/Highway Systems; National Advanced Driving Simulator; and rulemaking for heavy truck braking, head impact protection, and child safety seats.
- Identify and ensure the repair or removal of unsafe vehicles from the road through its safety defect and non-compliance investigation and recall authority.
- Set budgetary and activity priorities to ensure that all Secretarial and Congressional mandates are met in a timely manner and that public resources are used to address the most significant crash loss problems on the Nation's highways.

The agency has published Priority Plans for several years that spell out in some detail what the agency is doing. These plans result from detailed analysis of where losses are occurring and what opportunities we have to reduce those losses. We are currently in the process of building upon and expanding our planning activities through the development of a strategic plan that will chart the future direction of the agency.

#### **Motor Vehicle Safety**

Our motor vehicle safety program is designed to improve safety performance of motor vehicles and vehicle equipment and to advance safety technology. It includes the following main elements:

- *Research and development into prevention of crashes* includes Intelligent Vehicle Highway Systems (IVHS), the National Advanced Driving Simulator (NADS), human factors, heavy truck braking and handling stability performance, controls and displays, and lighting and signalling systems.

Advanced computer technology combined with sensors and communication systems provide a new potential to reduce the likelihood of a crash. These IVHS systems can be installed on vehicles, and they can begin to provide increased levels of safety for any vehicle that has them. IVHS technologies include smart cruise controls, lane monitoring systems, driver alertness monitoring systems, collision avoidance warning systems, driver visibility under adverse conditions, and more. Motor vehicle manufacturers are now commercializing IVHS-related systems on new cars. More advanced systems, such as smart cruise controls, are expected by the turn of the century.

NHTSA is developing the National Advanced Driving Simulator to study driver behavior in normal and emergency conditions. NADS will be able to simulate a wide variety of driving conditions, vehicle characteristics, and traffic and environmental circumstances.

- *Research and development into protecting people when crashes occur* includes the biomechanics of trauma and new dummy development, advanced frontal crash protection to address the tens of thousands of fatalities and serious injuries that continue to occur despite substantially higher safety belt use and air bags.

improved ejection protection particularly from rollovers, increased heavy truck occupant protection, and reduced truck aggressivity in collisions with smaller vehicles.

- *Rulemaking* develops and promulgates Federal motor vehicle safety standards which are safety performance standards for new motor vehicles and equipment, and consumer information requirements. The agency is currently giving a high priority to implementing new standards for heavy truck braking, head impact protection, rollover protection, and child safety seats.
- *Other programs* support cooperative research, voluntary standards development, and marketplace incentives for improved vehicle safety.
- *Enforcement* activities ensure that new vehicles and equipment conform to Federal requirements and that vehicles and equipment that do not conform or that have safety-related defects are identified and repaired by their manufacturers or removed from service.
- *Regulatory assessment and evaluation* helps the agency determine the potential impacts of new programs and measures the actual impact of standards, programs, and technologies after they have been put into effect. This information is then fed back so that we can adjust our priorities and programs to accommodate the changing environment.

## Highway Safety

NHTSA sets national policies for and leads this nation's highway safety program. We conduct the program through Federal grants and technical assistance in cooperation with state and local government, private organizations, and the public. This program consists of research, development, demonstration, information dissemination, and evaluation.

- *Public information and education (PI&E)* is directed particularly at priority areas such as alcohol and the use of occupant restraints, child safety seats, and helmets for motorcyclists and bicyclists.
- *Enforcement of traffic laws* concerning drunk driving, not using safety belts and motorcycle helmets, and speed is a major priority. Enforcement programs are often carried out in conjunction with PI&E programs.
- *Traffic records* provide assistance in enforcing traffic laws and information to evaluate traffic safety. It includes driver licensing, National Driver Register, vehicle registration, accident records, traffic law enforcement records, etc.
- *Emergency medical services* are important to limiting the consequences of injury in motor vehicle crashes and support other public health needs.

### Success of NHTSA Programs

NHTSA has had substantial success in improving the crash safety of motor vehicles. Many passenger cars, light trucks, and vans now on sale have air bags, advanced side impact protection, and 35 mph frontal crash protection capability as well as meeting the traditional standards for fuel system integrity for fire safety, windshield glazing, interior impact protection, safety belts, and interlocking door latches.

Our evaluations have indicated substantial life savings -- thousands of lives annually -- from all of the crashworthiness standards. In addition, an evaluation just released showed that cars with good scores in the New Car Assessment Program (NCAP 35 mph frontal crash test consumer information) had a 25 percent lower fatality rate than cars with poor scores. The public is using safety belts, child restraints, and motorcycle helmets in record numbers. Belt use has increased from less than 15 percent in 1982 to about 66 percent in 1993, resulting in a cumulative life saving of more than 35,000 lives. Child safety seats have saved the lives of more than 2,000 young children during the same period.

In addition, we have not ignored crash avoidance. Drunk driving is down substantially as a result of the deterrent and prevention activities over the past decade. As a result, the number of alcohol-related deaths occurring each year has been reduced by 30 percent since 1982, saving approximately 7,500 lives annually. Vehicle tires, braking, signalling, conspicuity, and other crash avoidance systems have improved in the past decade or two, and have also saved lives.

These successes can be economically quantified. Federal grants to states and local communities must be matched by at least 20 percent state funding out of every dollar spent on implementing State highway safety program plans. State and local governments actually spend considerably more on traffic safety. The public also pays a small premium for motor vehicles and equipment, such as tires and child safety seats, that meet Federal safety standards. Combined Federal, state, local, and consumer spending on highway and motor vehicle safety under Federal programs since 1966 has resulted in societal savings that are estimated to have been well over three times the total cost of these programs.

#### **Government Performance and Results Act**

Last year, the Congress passed the Government Performance and Results Act. NHTSA has been selected, in its entirety, as a pilot agency to implement the requirements of that Act beginning this fiscal year. We were nominated because we were confident that the agency's past experience in justifying and carrying out a highly cost-effective program has prepared us well to meet the requirements of that Act. As a pilot agency, we hope to set a high standard for performance and results.

#### **Cross Modal Safety Programs**

Secretary Peña's plan for improving the Department's safety performance requires that its agencies cooperate in cross-modal management of safety issues. Some of our cross-modal initiatives include cooperative research, development, and demonstration; and program implementation to achieve the Department's safety goals and objectives. We work most

closely with the Federal Highway Administration (FHWA) because of our common concern about safety on the highway.

Our programs with FHWA include heavy truck safety where we have jointly published a safety plan, pedestrian safety, speed enforcement where we have a goal of a 5 percent reduction in speed-related crash fatalities by 1997, driver records, driver licensing, the development of advanced computer modeling techniques to simulate crashes into roadside hardware such as guardrails and luminaire supports, and highway safety data collection and analysis. The two agencies are cooperating to implement Safety Management Systems in the states as called for in the Intermodal Surface Transportation Efficiency Act of 1991.

We are working together to ensure that advanced IVHS systems that provide more information to drivers, reduce congestion, and facilitate more efficient use of the highways do not have adverse safety impacts. We are concerned not only with direct applications to crash avoidance problems but with ensuring that IVHS programs with other basic goals do not compromise safety by distracting drivers or providing too much information at critical points in the driving task. The Department is committed to the goal that IVHS will substantially enhance the safety of the travelling public.

The agency worked closely with all agencies of the Department in the development of the recently issued DOT workplace alcohol testing rule for transportation workers. NHTSA pioneered in the development of accurate, inexpensive test equipment and procedures for determining blood alcohol levels that have been broadly accepted by the country's courts. We participated in the rulemaking process for the DOT rule, developed model training

programs for breath alcohol test technicians, and prepared quality assurance guidelines for the breath test industry. We will assist other transportation agencies in carrying out the provisions of the alcohol breath test regulations for the transportation industry.

We have also worked with the Federal Aviation Administration on child safety seats, and with the Federal Railroad Administration and others in the development of a Highway-Rail Crossing Safety Action Plan.

In 1991, the Department established a Research and Technology Coordinating Council to maximize the effectiveness of the Department's research funding. NHTSA currently chairs the Transportation Human Factors Coordination Group, which reports to the Council. The Group has identified several topical cross-cutting issues such as fatigue, drug and alcohol effects, and automation. The Coordination Group is working to identify ways of sharing research results, testing methods, and equipment.

#### **NHTSA's Resources**

In FY 1994, Congress provided NHTSA \$268 million to carry out its programs. For motor vehicle safety, our budget is \$68.9 million. For highway safety programs we have \$40.3 million. Congress provided \$158.5 million for highway safety grants to state and local governments which the states must match with at least 20 cents for every Federal dollar.

NHTSA's resources have remained fairly constant in recent years except that the cost of our data collection programs has risen faster than the funding provided by the Congress.

As a consequence, we have had to reduce the number of National Accident Sampling System (NASS) teams and to make other changes in our data programs.

On the other hand, as a consequence of the National Performance Review (NPR) we are making reforms and other changes that will ensure that we use resources more efficiently, so that despite the reduction in personnel ordered by the President, we believe we can continue a strong and effective traffic and motor vehicle safety program.

#### **Regulatory Analysis and Evaluation**

NHTSA conducts regulatory analyses that detail the nature of the problem the agency is addressing (that is, the specific risks facing the public); and estimate the various costs that will be incurred, the benefits that will come from agency action, and the environmental and other impacts that will result. After a regulation or program has been in place for some time, we evaluate the results to see if they are consistent with our regulatory analysis and if additional action is needed to address remaining risks. The processes are carried out according to the prescriptions of Executive Order 12866.

I would like to conclude my prepared statement with the observation that just as highways are an extensively used transportation network, highway safety continues to be a national priority. The Congress; Federal, state, and local governments; the automobile industry; and others should be proud of the successes we have jointly achieved. We should all look forward to continuing this excellent public health program. I would be pleased to respond to any questions you may have.

TESTIMONY OF BRUCE M. FINE,  
ACTING ASSOCIATE ADMINISTRATOR FOR SAFETY,  
FEDERAL RAILROAD ADMINISTRATION,  
BEFORE THE SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT  
OF THE HOUSE COMMITTEE  
ON PUBLIC WORKS AND TRANSPORTATION

March 2, 1994

On behalf of the Federal Railroad Administration (FRA), I appreciate the opportunity to testify on the railroad safety program and to discuss how FRA is working with safety programs of other operating administrations within the Department of Transportation.

As Secretary Peña has testified, tying America together and promoting safe and secure transportation are major goals of the Department's Strategic Plan. At FRA, Administrator Jolene Molitoris is leading us toward a new recognition that these goals are significantly interrelated. Through teaming with other operating Administrations to solve common problems, sharing research and technology, and gleaning insights from the program initiatives and results of other DOT agencies, we can better contribute to the safety of people and property across transportation.

**The Challenge**

FRA's safety goals are to promote the safety of railroad operations and the safety of railroad employees. We strive to prevent--

- train accidents;
- unintended releases of hazardous materials in rail transportation; and

- harm to passengers, employees, and persons at (highway-rail) grade crossings and along the right-of-way.

FRA also has special statutory responsibilities for employee safety that include enforcement of hours-of-service limitations and promotion of bridge worker safety, safe working conditions on locomotives, and other workplace safety objectives.

The safety challenge that we face is the continued reduction of risk across a system of over 200,000 track miles upon which America must increasingly rely to carry freight and passengers, as part of a balanced national transportation system. The Nation's railroads employ over 200,000 persons, operate 1.2 million freight cars using 20,000 locomotives, and log over 600 million train miles each year.

As you know, in 1993 we experienced two serious passenger train accidents at Gary, Indiana, and near Mobile, Alabama, which resulted in 7 and 47 fatalities, respectively. Final data for 1993 is not yet complete, but even with these accidents and a severe freight train collision at Longview, Washington that claimed 5 crew members, the overall complexion of the railroad safety picture will not have changed greatly. In 1992, 579--almost half--of the 1,170 fatalities associated in some way with railroad operations involved accidents at highway-rail crossings. Another 533 fatalities involved trespassers on railroad property. The remainder--representing less than 5% of the total

fatalities--involved railroad employees (35), passengers (3), and other persons such as contractors (20). Although 1992 was a record year in some statistical categories, the overall mix of fatalities was typical.

Train accident rates have declined from 14.62 per million train miles in 1978 to 3.98 in 1992. Employee injury rates were very nearly cut in half during the same period. There has not been a fatality caused by release of hazardous materials during rail transportation since 1986 and only one since 1980. On any reasonable, normalized basis, rail transportation deserves good marks for safety.

#### The Railroad Safety Program

The primary authority for our safety program is the Federal Railroad Safety Act of 1970, as amended, which directs us to "prescribe, as necessary, appropriate rules, regulations, orders, and standards for all areas of railroad safety...." However, other enactments date back to the first Safety Appliance Acts in 1893, when the Federal Government first became involved in rail safety.

FRA addresses railroad safety issues through vigorous programs of research and development, regulation, and enforcement. Including new positions to be filled this fiscal year, we employ a headquarters safety staff of 87. With the sixteen new positions that we are adding to address highway-rail crossing safety, our field staff will consist of 401 safety professionals, including 6 training personnel, and 57 support

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personnel. Our budget for safety operations in FY 1994 is \$44.4 million, and the total amount including support from other offices and safety research exceeds \$62 million.

We believe that the new resources granted in the President's Budget for FY 1994, as enacted by Congress, will help us become more timely in addressing regulatory needs. In addition, we will be able to provide better focus from the rail side on reduction of risk at highway-rail crossings, complementing the efforts of the Federal Highway Administration, States, local governments, and thousands of Operation Lifesaver volunteers. All of us must be part of the solution to this intermodal problem, and the tragic numbers clearly point to the need to continue aggressive engineering improvements (including consolidation of crossings), research, education, and law enforcement. I will return to this point in a moment.

Historically, we have divided our field staff into the technical disciplines of track, motive power and equipment, signals and train control, operating practices, and hazardous materials. This year we are adding highway-rail crossing and trespasser safety as a sixth technical discipline in the field.

FRA collects extensive data on train accidents, highway-rail crossing accidents, and personal injuries. Our train accident data provides a reasonably high degree of accuracy as to the primary and secondary causes of the accident, identified by cause codes. FRA also investigates each employee fatality, approximately 100 of the most serious train accidents each year,

and a small number of highway-rail crossing accidents. In addition to providing information for enforcement actions, we use these investigations to develop more detailed information that can help us prevent future occurrences by defining specific safety improvements that might be implemented through rulemaking or through voluntary action of the railroad.

Good accident data helps us target areas of need for regulatory action. It also permits us to estimate the benefits in accident avoidance that we can achieve through regulatory initiatives, as a part of the economic assessment we perform in support of our rulemakings.

Data from our compulsory reporting systems is combined with data from routine inspections, information on traffic volumes, and other pertinent data through our resource allocation model--known as the National Inspection Plan (NIP). The NIP establishes inspection-hour goals for each discipline, railroad, and State to focus inspection resources on areas of greatest safety risk.

Despite the fact that the safety record of the railroads is generally very good, all of us--the railroads, their employees, the rail supply industry, our 31 participating State programs, and FRA--are committed to making that record even better, especially because we recognize the increased exposure of severe accidents that could result from more dense operations, increased loads and higher speeds. Administrator Molitoris has initiated an extensive process of consultation with all interested parties to see how we can improve the quality of services we deliver and

to see how best we can work together to define and address safety needs. For instance, in support of a requirement to report to the Congress on advanced train control systems, we are holding a series of roundtable discussions to explore, among other issues, the costs and benefits of such systems. FRA is working more closely with Amtrak to ensure we build safety into the system. We believe this collaborative process can help us produce better safety results by incorporating the contributions of everyone with a stake in railroad safety.

#### Current Rulemakings and Studies

FRA's current rulemaking agenda is long and complex. The Rail Safety Enforcement and Review Act of 1992 mandated a series of important rulemakings and studies that now dominate the FRA safety agenda. FRA has issued advance notices of proposed rulemaking for revision of the Power Brake Regulations and the Track Safety Standards, two of the major rail regulatory programs. The legislation specified some of the issues we are to address, such as two-way telemetry devices for freight trains and review of provisions that except certain track from safety requirements. Administrator Molitoris is planning to issue a notice of proposed rulemaking in the power brake proceeding in the near future, followed by a proposal for revision of the Track Safety Standards later this spring. The 1992 legislation also requires major rulemaking activities addressing locomotive working conditions. Under the same law, FRA is concluding a study of train dispatcher working conditions. FRA is also

developing for issuance this year a proposal for revision of our accident and casualty reporting requirements, to ensure that we have the best data we can obtain on which to base our regulatory decisions and to guide field resource allocation.

#### Intermodal Safety

FRA recognizes that intermodal intersections present safety risk for which coordinated responses may be needed. Last September near Mobile, Alabama, a tow of barges blundered into a railroad bridge that was well off its intended course, leading to 47 fatalities among the passengers and crew of Amtrak's Sunset Limited. Clearly, the tow boat had no business moving up that bayou in dense fog; and the bridge was a low risk location for such an accident to happen. However, as safety professionals we still look for ways for prevent a recurrence of this kind of tragic event. Just as the United States Coast Guard is working diligently to implement stronger safety measures for inland-waterway barge operations, FRA is exploring whether cost-effective answers can be found to the problem of detecting bridge damage before it causes a tragedy. FRA is also working with the Coast Guard to ensure that more timely notice is provided of bridge damage.

As I indicated a moment ago, highway-rail grade crossings represent the greatest source of fatalities related to railroad operations. Based on preliminary data we project that in 1993 more than 600 people died and more than 1,700 were injured in about 4,800 accidents at highway-rail grade crossings. Safety

improvements have cut grade crossing fatalities in half over the past 20 years, despite increased exposure. But that is not good enough.

Secretary Peña has directed FRA, the Federal Highway Administration (FHWA), the Federal Transit Administration, and the National Highway Traffic Safety Administration to develop a new action plan for improvement of safety at these intermodal intersections. The action plan will build on the momentum we have already achieved.

We are already well positioned to begin a new initiative in this area. In response to the President's Budget for Fiscal Year 1994, the Congress has funded a small cadre of grade crossing safety and trespasser prevention managers--the first FRA field resources fully dedicated to grade crossing and trespasser safety. These individuals will work with FHWA to help State and local communities design and execute corridor safety improvement programs. We will also be working to bring to a swift conclusion the congressionally-mandated rulemaking on maintenance of grade crossing warning systems, for which the notice of proposed rulemaking was published on January 20th. Further, FRA will move promptly to require auxiliary locomotive lighting that will make trains more conspicuous to motorists.

#### Partnerships for Safety

As suggested by the example of the Secretary's Grade Crossing Action Plan, our commitment to teamwork extends throughout the Department of Transportation as well as to the

industry that we regulate. We regularly benefit from that commitment in ways specific to rail transportation. For instance, FRA regularly employs the expert services of the Volpe National Transportation Systems Center, a component of the Research and Special Programs Administration. Among the many research and development projects that the Volpe Center has managed for FRA is a major inquiry into safety requirements for high speed rail. The findings from the high speed rail studies will provide an important part of the technical foundation for FRA's rulemaking effort.

The Volpe Center also provides quick-response support in aid of safety operations. In recent months, FRA has utilized the Volpe Center to help address thermal cracking problems on commuter-car wheels, to assist in materials testing following a major hazardous materials incident, to evaluate the dynamic behavior of a commuter car truck design, and to evaluate cracking problems in certain tank cars that carry hazardous materials. In addition to advancing the frontiers of knowledge, the Volpe Center serves as a means of sharing technology throughout DOT, helping each of the operating administrations to gain the benefits of work going on elsewhere in the Department.

Mr. Chairman, let me once again offer our thanks for this opportunity to appear before you with our DOT safety colleagues.

US Department  
of Transportation  
United States  
Coast Guard



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United States Coast Guard

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DEPARTMENT OF TRANSPORTATION

U. S. COAST GUARD

STATEMENT OF REAR ADMIRAL ARTHUR E. "GENE" HENN

ON DOT INTERMODAL SAFETY

BEFORE THE

SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT

OF THE

PUBLIC WORKS AND TRANSPORTATION COMMITTEE

U. S. HOUSE OF REPRESENTATIVES

MARCH 2, 1994



**Rear Admiral A. E. "Gene" Henn  
Chief, Office of Marine Safety, Security  
and Environmental Protection  
United States Coast Guard**



Rear Admiral Arthur Eugene Henn became Chief, Office of Marine Safety, Security and Environmental Protection at Coast Guard Headquarters, Washington, D.C., in June 1991. Prior to this assignment, Rear Admiral Henn was Commander of the Maintenance and Logistics Command, Atlantic.

Earlier assignments included that of Operations and Engineering Officer on the Coast Guard cutter Chincoteague; Assistant Chief, Merchant Marine Technical Branch, New Orleans, LA; and Special Project Action Officer, Merchant Marine Technical Division, Coast Guard Headquarters.

He was also Marine Inspector and Senior Investigating Officer, Marine Inspection Office, Philadelphia, PA; Chief, Engineering Branch and Chief, Marine Technical and Hazardous Materials Division, Coast Guard Headquarters; Captain of the Port, New York; Commander, Group, New York; Commander, Subsector, New York, Maritime Defense Zone, Atlantic; and Chief, Operations Division and Chief of Staff, Eighth Coast Guard District, New Orleans, LA.

A 1962 graduate of the Coast Guard Academy, Rear Admiral Henn earned combined master of science degrees in naval architecture, marine engineering and metallurgical engineering from the University of Michigan in 1968. Also, he is a 1982 graduate of the Army War College.

His decorations include the Legion of Merit, two Meritorious Service Medals, four Coast Guard Commendation Ribbons, Coast Guard Unit Commendation Ribbon, Coast Guard Achievement Medal and two Commandant's Letter of Commendation Ribbons.

Rear Admiral Henn is a member of the American Society of Naval Engineers, American Bureau of Shipping, International Cargo Gear Bureau, Marine Index Bureau, Marine Engineering Council of Underwriters Laboratories and the Sealift Committee of the National Defense Transportation Association.

During the past 20 years, he has represented the United States Coast Guard as a member of delegations to the International Maritime Organization, a United Nations specialized agency. He heads United States delegations to meetings of the Maritime Safety and Marine Environment Protection Committees of IMO.

A native of Cincinnati, Ohio, Rear Admiral Henn is married to the former Susan Frances Pedretti, also from Cincinnati. They have two grown children, David and Jennifer.

STATEMENT OF REAR ADMIRAL A. E. HENN  
U. S. COAST GUARD  
BEFORE THE COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION  
HOUSE OF REPRESENTATIVES

MARCH 2, 1994

Thank you, Mr. Chairman, for this opportunity to join the DOT panel of Modal Administration representatives here today to share with you their accomplishments and plans dealing with cross-modal safety management.

I would like to introduce the DOT panel in the order in which they will speak. I am Admiral Arthur E. Henn, Chief of Marine Safety, Security and Environmental Protection, U.S. Coast Guard. To my right is Mr. Charles Huettner, Acting Associate Administrator for Aviation Safety at the FAA. On Mr. Heuttner's right is Mr. Dennis Judycki, Associate Administrator for Safety and System Applications in the Federal Highway Administration accompanied by Mr. Michael Trentacoste from the Office of Motor carriers.

Next to Mr. Trentacoste is Mr. Bruce Fine, Deputy Associate Administrator for Safety for the Federal Railroad Administration. To his right is Mr. Donald C. Bischoff, Associate Administrator for Plans and Policy at the National Highway Traffic Safety Administration. Next comes Mr. Lawrence Schuloman, Associate Administrator for Technical Assistance and Safety at the Federal

Transit Administration. And last, but certainly not least, at the end of the table is Ms. Rose A. McMurray, Chief of Staff of the Research and Special Programs Administration.

We have also brought along a chart illustrating those programs in which you indicated an interest, and showing the modal involvement in those programs.

Subject to your approval, Mr. Chairman, I will now summarize my prepared statement.

#### MISSION

As part of the Department's intermodal safety team, the Coast Guard has a long and distinguished role in Maritime Safety. Although in recent years our responsibilities have grown, our primary missions have remained the core of our organization. A central element of our primary missions is safety, facilitating commerce and fostering the safe use of our nation's waterways.

We are a world leader in safeguarding life and property at sea, overseeing navigation safety, and waterways management. We continue to seek and promote the innovative use of technology to improve maritime safety, and our performance in all of our missions.

Our strategic goals define what we aim to achieve. They are results oriented, linked to our mission, and derived from Congressional mandates.

The strategic goals for our maritime safety programs are:

1. Eliminate deaths, injuries, and economic loss associated with maritime transportation,
2. Eliminate environmental damage associated with maritime transportation, and
3. Promote the safe, efficient, and environmentally sound use of America's navigable waters

#### BUSINESS FOCUS

Historically, Coast Guard operations have been directed through nationwide performance standards for a range of activities spanning prevention and response. National goals expressed by Congress and the Administration are translated into detailed program design. Early port safety and environmental protection mission performance standards were derived from a 1976 Rensselaer Polytechnic Institute study to optimize activity levels on a nationwide basis. While gaining some incremental improvements, the changing environment quickly outpaced these broad studies. In 1992, the Marine Safety Program undertook a comprehensive organizational assessment. The feedback received clearly signalled for a change in the way we do business.

We found that our greatest opportunities for improvement lie in minimizing detailed management of field activities, and letting those closest to the risk manage the risk. This is consistent the Vice President's National Performance review and subsequent Presidential memorandum on "Streamlining the Bureaucracy",

directing streamlining by delegation of authority, decentralization, empowerment of employees, and accountability. In place of detailed mission performance standards, field operations will have broad discretion in selecting actions from their "toolbag" to meet a set of program goals.

The business focus of our maritime safety program has many differing themes. Three in particular come to mind which show a high value of payback for the investment of resource. These are Port State Control, application of Human Factors, and Fishing Vessel Safety.

#### **Port State Control**

To efficiently conduct business and enhance safety, we have continued to focus on the "way we conduct our business". As our maritime safety program has evolved, an analysis of commerce activity showed approximately 14 times as many foreign flag ships calling at U.S. ports as comparable U. S. flag vessels. Under our traditional policies and regulations, however, the Coast Guard spends nearly half of its compliance-verification time on U.S. flag ships. Our flag state responsibility to ensure the adequacy of U.S. flag vessels explains the disparity in part. However, in view of the potential threat of pollution and casualties from foreign flag vessels, the Coast Guard is rebalancing its enforcement efforts towards foreign flag vessels. Simultaneously, through reexamination of our flag state activities, the Coast Guard is considering alternatives to its

traditional regulatory oversight of U.S. flag vessels. International concerns have been raised about the growing problem of substandard vessels operating under lax flag state umbrellas. The Coast Guard is strengthening port-state control efforts by targeting our boarding efforts on substandard ships, ships owned or operated by persons known to have operated substandard ships, and ships of countries or classification societies having a record of frequent association with substandard ships.

This program systematically targets high risk vessels with the intent of discouraging substandard ships from operating in U.S. waters, and encouraging those committed to trading with the U.S. to adopt management philosophies that ensure compliance with accepted safety standards.

In addition, the Coast Guard has experienced a number of hazardous materials and vessel safety violation cases involving foreign vessels where penalty collection efforts were unsuccessful, especially where owners and operators did not have readily recoverable assets in the U.S.

We are presently considering how best to correct this regulatory "loop-hole" within the Coast Guard's port state enforcement regime. Currently the United States is a world leader in initiatives with the International Maritime Organization (IMO). The IMO will hold a SOLAS conference in May of 1994, with the intent of evaluating operational port state control requirements, Enhanced Survey Guidelines, and the Safety Management Code.

**Human Factors**

The Coast Guard is concerned with human factors in the marine industry. Effective implementation of a national human factors policy requires close coordination within the Coast Guard. In order to facilitate the process of cooperation, the Coast Guard Coordinating Committee on Human Factors has been established. This Committee consists of representatives from all the divisions of the Office of Marine Safety, Security and Environmental Protection and representatives from the Maritime Administration. The goal of the Committee is to develop a consensus on how current information on human factors can be incorporated into internationally accepted rules, standards, guidelines and procedures.

We are addressing human factors issues in the revision of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW). One of the primary reasons the STCW Convention is being revised on an accelerated basis (with a target date of July 1995 for a conference to adopt amendments) is to demonstrate that IMO and the international community can respond to the fact that a high percentage of maritime casualties are attributable to "human error". While such errors have not been analyzed to any degree of specificity, it is generally agreed that there must be improvements in training and operating procedures to ensure that crew members meet minimum competence standards. A number of specific human

factor issues have been introduced as amendments for deliberations at IMO on how the STCW Convention should be revised, including:

- a. Workhour limits for watchkeeping personnel (i.e. fatigue);
- b. Communication and language problems particularly among crews of different nationalities and between crewmembers and passengers;
- c. Communication of essential information between the pilot and the master;
- d. The need for shipboard procedures which capture errors before they can lead to a catastrophe; and
- e. Manning implications (i.e., the impact of the revised Convention on the size of crew complements).

One of the Coast Guard's most significant responsibilities is to issue licenses, certificates, and documents to individuals employed on U.S. vessels to ensure they possess the requisite knowledge, skills and ability to perform job tasks required for the safe operation of a ship.

Three working groups have been established by the Merchant Marine Personnel Advisory Committee, each of which deals with human factor issues. The first working group is concerned solely with establishing physical standards for mariners. The other two working groups are concerned with validating the Coast Guard Focus Group report, "Licensing 2000 and Beyond." A key focus of

this report was the Licensing Program to adopt new methods for verifying the competence of mariners.

Currently, the Coast Guard is only testing mariner's for knowledge, but our internal focus group report "Licensing 2000 and Beyond" recommends adopting new methods for verifying competency. This includes the demonstration of practical skills before licensed "Designated Examiners" or Coast Guard personnel as appropriate, and effective use of simulators to assess the ability of applicants to cope with realistic, dynamic vessel operating and engineering scenarios, and improve the means of administering objective knowledge tests. The National Research Council is conducting a supporting study on ship bridge simulators training under the Oil Pollution Act of 1990.

#### **Fishing Vessel Safety**

The Coast Guard has historically recognized the existence of significant safety problems within the commercial fishing industry. According to the U.S. Department of Labor, commercial fishing is one of the nation's most dangerous occupations. Nearly 100 lives are lost annually in the commercial fishing industry. The 1991 National Research Council's report "Fishing Vessel Safety, Blueprint for a National Program" conducted a comprehensive study of commercial fishing industry casualty statistics from 1982 to 1987. This report suggests that fishermen aboard documented vessels perish at extraordinarily high rates, and are more likely to die on the job than workers in

most other industries. Prior to 1971, however, no specific efforts were made to delineate between commercial fishing vessels and other types of motor vessels regarding required safety equipment or standards. A 1971 Coast Guard Study entitled "Cost Benefits Analysis of Alternative Safety Programs for U.S. Commercial Fishing Vessels" documented, for the first time, the commercial fishing industry's poor safety record. It concluded that a primary reason for their historically poor safety record was the lack of specific safety requirements. It went on to recommend mandatory and voluntary safety standards, vessel inspections, and licensing of vessel masters.

From 1971 to 1988, the Coast Guard pursued fishing vessel safety legislation. In 1987, the National Transportation Safety Board completed a comprehensive study, "Uninspected Commercial Fishing Vessels'" recommending minimum crew safety training standards, basic safety equipment carriage requirements, and periodic vessel inspection.

On September 9, 1988, the President signed into law the Commercial Fishing Industry Vessel Safety Act (CFIVSA) of 1988. The CFIVSA specifically directed the Coast Guard to develop a stratified set of safety regulations that recognized the diverse safety needs of the industry. Vessel and crew size, operational areas, documentation, and construction dates are all major factors in determining the type and amount of safety equipment required. What followed was an effort by the Coast Guard to

consider all points of view and develop a practical set of safety regulations for the commercial fishing vessel industry. New regulations became effective on September 15, 1991. The regulations include equipment requirements for such items as lifesaving and fire protection equipment, immersion suits, distress signals, and Electronic Position Indicating Radio Beacons (EPIRBs) aboard commercial fishing vessels.

The initial focus of the Coast Guard's implementation program was, and remains, public awareness of the new requirements. Numerous nationwide initiatives have been undertaken to inform the public and include participation by Coast Guard personnel at many national, regional, and local trade shows and expositions. The program philosophy is simple: outreach and education through voluntary dockside examinations. We believe this approach provides the most effective combination for encouraging safety.

As part of the cooperatively developed regulations, the voluntary, no-fault dockside examination program was established to assist in the commercial fishing community's understanding of, and compliance with, the new regulations. This no-fault program has been in effect since September 15, 1991. The dockside examination program entails arranging an informal compliance examination of the fishing vessel. A vessel found in compliance is issued a decal, to be posted on the pilothouse window. If the vessel does not comply with the regulations, deficiencies are pointed out and explained to the fisherman. Fisherman are not

issued a violation or citation as a result of a dockside exam. Upon correction of any deficiency the fisherman may request the dockside examiner return to the vessel to issue a decal.

Although no violations will be issued as a result of a dockside examination, vessels that are boarded at-sea and found not to be in compliance with the safety requirements are subject to monetary penalties, and in extreme instances, termination of their voyage. Time spent dockside learning what equipment is required, and successfully completing an exam may not only avoid penalties and delays on the fishing grounds; it may save a life.

Additionally, the CFIVSA required the Coast Guard to prepare and submit a plan to Congress for the licensing of operators of federally documented fishing, fish processing, and fish tender vessels. It is estimated that over half of the casualties were the direct result of preventable operator errors that may have been corrected through improved professional competency of operators. The Coast Guard considers the increase of basic skill level of operators to have the most promise for improving the current safety record.

On January 13, 1992, the Coast Guard, in close consultation with the Commercial Fishing Industry Vessel Advisory Committee (CFIVAC), submitted a plan to Congress which recommended a legislative proposal to license the operators of commercial fishing industry vessels. This plan was designed to minimize the

burden on the fishing industry by utilizing an innovative licensing system to allow the Coast Guard to approve and authorize third parties to give examinations and certify individuals as meeting the required professional knowledge and skill levels required for a license. The Coast Guard would prescribe the minimum knowledge and training standards for operators of commercial fishing industry vessels.

On May 19, 1993, the Secretary of Transportation forwarded the Marine Safety Act of 1993 to Congress. Contained in Title V of the Marine Safety Act is proposed legislation to license all operators of federally documented commercial fishing industry vessels.

#### **Recreational Boating Safety**

The Federal Boat Safety Act of 1971 provided broad statutory authority for a comprehensive National Recreational Boating Safety Program, with the Coast Guard designated as the National Coordinator. At the time of the passage of the Federal Boat Safety Act of 1971, the boating fatality rate was 20.2 deaths per 100,000 boats. The rate has steadily declined to a record low of 4.0 in 1992, while the recreational boat population almost tripled during the same period.

Program activities include administration and operations support of the 35,000 member volunteer Coast Guard Auxiliary; public boating education, information and training; liaison with states

and other organizations; consumer services including a toll-free hotline; establishing and enforcing national safety standards for boats and associated equipment; and compilation, analysis and reporting of boating accident information.

The Coast Guard Auxiliary is an extremely beneficial resource. Its volunteer members provide public boating education, courtesy marine examinations, and operations support such as vessel assistance, safety patrols and regatta patrols.

#### OIL SPILL RESPONSE

The Coast Guard is committed to working aggressively with federal, state and local agencies, environmental interest groups and private industry to ensure long-term environmental quality. This commitment is manifested in a multifaceted program developed in concert with other federal agencies at the National level and carried out in cooperation with the entire community at the local port level.

The Preparedness for Response Exercise Program (PREP) is a prime example of the effectiveness of this commitment within the Department. PREP was conceived by the Coast Guard and immediately recognized by the Office of Pipeline Safety as critical to establishing and maintaining effective response capabilities both within government and in the private sector. PREP establishes a mechanism to routinely exercise and evaluate the response plans of industry and the contingency plans of the

government. PREP recognizes the need to exercise plans, and the resource limits of government or industry plan holders to exercise their respective plans. PREP was developed, between February and October of 1993, through a series of public workshops cosponsored by the Coast Guard, Office of Pipeline Safety, EPA, Mineral Management Service which attracted over 1500 people from around the country. PREP successfully harmonizes the regulatory schemes of four federal agencies, and establishes clear standards for exercises that are achievable and supportable by both industry and most of the states.

#### **Search and Rescue Program**

The Coast Guard has been proactive in our efforts to continually improve the Search and Rescue (SAR) program. On the average, the Coast Guard saves 5,500 lives, \$547 million in property, and assists another 120,500 people. We developed and implemented program measures of effectiveness to reflect the SAR system's ability to save lives and property. We developed two systematic methods of determining proper allocation of field resources based on an analysis of SAR and other mission workload factors. They are the Unit Change Guide and Releveling Plan.

Our emphasis in research and development efforts to improve our search performance focused on improving drift prediction and evaluating new sensor performance. We are evaluating satellite-tracked drifting buoys as a means of obtaining real time ocean surface current information to predict drift. We evaluated the

capability of Night Vision Goggles and the AN/APS-137 airborne radar. The results are used by our search planners. These R&D efforts are critical to search planning and directly contribute to increasing our probability of success.

We significantly improved and upgraded over the past 3 years our premier computer search tool, CASP (Computer Assisted Search Planning) system. We incorporated into CASP new environmental files vital to accurately predict drift, graphical interfaces for search area displays, and user friendly enhancements.

The Coast Guard is working with NOAA to increase the effectiveness of the Search and Rescue Satellite-Aided Tracking (SARSAT) system. Currently, seven U.S. ground stations provide coverage for virtually all waters within our exclusive economic zone and search and rescue region. A geostationary satellite will be launched this summer, which together with a new associated ground station, will provide almost immediate distress alerting for approximately 40% of the earth's surface visible from its 22,000 mile vantage point. In a cooperative effort, the Federal Communication Commission will publish mandatory 406 MHz emergency beacon registration rules and National Oceanographic and Atmospheric Administration has launched initiatives to assure registration database accuracy.

#### **Vessel Traffic Services**

The Coast Guard enhances the safe and efficient use of our nation's waterways by managing an effective system of Vessel Traffic Services (VTS). VTS is internationally accepted as a means of enhancing safety, efficiency, and environmental protection in ports, waterways, and coastal zones. The primary mission of a VTS is to facilitate the movement of vessels to prevent accidents and the associated adverse human, property, environmental, and economic consequences.

The future of the system is guided by the Port Needs Study which, identified additional areas that may benefit from the establishment of a VTS. VTS 2000 is the major acquisition project which focuses on establishing these new VTSs and retrofitting existing VTSs using state-of-the-market equipment.

#### **Short Range Aids to Navigation**

Short Range Aids to Navigation (SRA) promotes the safety of marine transportation and facilitates commerce on the navigable waters of the U.S.. The SRA program involves the maintenance of over 49.6 thousand sound and visual signals to mark safe water or warn of dangers. The program utilizes the Waterways Analysis and Management System (WAMS) to enhance evaluation, planning, and management of the aids comprising a "localized" system. The program also provides the mariner with up-to-date local information by publishing of the "Light Lists" and "Notices to Mariners".

**Resource Management**

The 1990 GAO Report B-238523 - "Better Process Needed to Justify Closing SAR Stations", contained three recommendations for the Coast Guard to develop a process to be used in future station closures. The Coast Guard used this opportunity to develop the Unit Change Guide, a formal procedure that fully addressed the concerns in the GAO report.

The Unit Change Guide (UCG) is a decision management tool used to evaluate proposed changes to small boat units, including closures. The UCG provides a standard process, which applies criteria consistently, requires accurate and current data, and ensures complete documentation of the process and results.

**Statistical Data Base**

Statistical data is the basis for many of our measurement, management decisions. The Coast Guard formally compiles data on the majority of its activities and their results. Much of this data is routinely exchanged with the public and other agencies upon request.

The Coast Guard currently tracks vessel safety performance data using the Marine Safety Information System (MSIS). MSIS was built with the original intention of providing real time information to our Marine Safety Offices for the purpose of managing boardings and inspections. MSIS has undergone

continuous expansion since its introduction and is now used, in addition to it's original purpose, as a primary tool for conducting vessel documentation, recording personnel actions and capturing casualty data.

MSIS extractions are provided to National Transportation Safety Board, Maritime Administration and Research and Special Programs Administration on a quarterly basis. In addition, these agencies also have access privileges to MSIS in retrieval mode. MSIS information is also forwarded to the Joint Maritime Intelligence Enforcement System.

In addition to the formal exchange of statistical information regularly done, numerous State agencies receive copies of the Documented Vessels of the United States extraction tape on a routine and as requested basis. Limited public access to the MSMS data is also available through the Port State Information Exchange (PSIX). This system started in late October 1993 and allows the general public "read only" access to limited non-proprietary data.

MSIS will eventually be replaced by the Marine Safety Network (MSN), which is currently in the early stages of development. MSN will include enhancements to allow the use of standardized data fields and multi user access. Conversely, the Coast Guard will also be able to access information in databases maintained by other organizations. The Coast Guard is working with RSPA on a DOT centralized data base for inspection and enforcement data.

For the recreational boating segment of maritime safety, the accident reporting criteria is established by Federal regulation. Individuals report directly to state or local agencies, except in Alaska, the only state without an approved boating safety program. Accidents in Alaska are reported directly to the Coast Guard. Compiled accident reports are forwarded to Coast Guard headquarters by all agencies along with any follow up investigations. The data is analyzed for trends and used to determine if preventative program action is needed. The annual "Boating Statistics" report is available to the public and provided to all States and associated agencies.

We also establish Search and Rescue (SAR) incident reporting criteria. Coast Guard units electronically upload SAR Case information into the Search and Rescue Management Information System's (SARMIS) master database located in Washington, DC.

The "SAR Statistics" is an annual publication which presents a general overview of SAR activity. This publication is distributed to resource managers and operating units CG-wide. Upon request, issues are provided to Government agencies and private organizations and individuals that have a need for this type of information.

**Successes**

As with any program, there are tangible and intangible results. Our recently implemented Fishing Vessel Safety program is a qualified success. The survival of crewmen from several lost vessels is directly attributable to the fishing vessel safety program.

The Trans-Alaska Pipeline Service (TAPS) program illustrates the mutual benefits to operators, crew, and the environment of a scientifically sound and aggressive structural maintenance program. Not one vessel has been lost nor drop of oil spilled by structural failure in the TAPS fleet since instituting the program.

In the late 1980s, responding to a number of well publicized marine casualties, the Coast Guard focused attention on structural failures of ocean going vessels. The intent was to identify trends in the pattern of structural failures, and to develop methods to reduce the number and severity of such occurrences.

On 25 June 1990, the Coast Guard issued its report, "TAPS TANKER STRUCTURAL FAILURE STUDY." The report cited poorly designed structural details, poor weld workmanship, and fatigue associated with the use of high strength steel. These conditions were exaggerated by the harsh environment of the Gulf of Alaska and identified as principal causes of structural failures in TAPS vessels.

Three major developments resulted from the study:

1. More frequent structural inspections are conducted.
2. Structural failures are prioritized in three levels.
3. Vessels which have experienced, or by virtue of class design and/or service could expect to experience structural failures, are required to develop Critical Area Inspection Plans (CAIPs) to
  - document and track structural failures, and to monitor the performance of various repair methodologies.

The primary goal of the TAPS program is to promote permanent solutions to the problem of recurrent structural failures. Since July 1992, CAIPs have been required for all TAPS vessels and are now regularly consulted by field inspection personnel to more efficiently target areas of concentration for drydockings and internal structural examinations.

Recent updates to various TAPS vessel CAIPs have indicated that operators are analyzing structural failures and effecting modifications designed to remedy the primary causes of the failures, rather than merely correcting the symptoms as they appear.

The Coast Guard has been especially pleased by the cooperation which we have received from the industry, the high quality data being developed on the structural condition of the TAPS fleet, and the various strategies employed to remedy structural problems.

The CAIP program placed the primary responsibility for vessel safety on the vessel's operators themselves, rather than the Coast Guard.

We are also implementing a national container inspection program (CIP) this year. Inspectors are being assigned to field units based on the volume of container traffic in the port area. They will inspect intermodal freight containers for compliance with the Hazardous Materials Regulations (HMR). They will also be working with other federal, state, and local enforcement agencies to ensure a coordinated enforcement effort.

One of our most successful methods is the joint hazardous materials strike force "sting" operations where multiagency, multimodal, teams operate together within a port area targeting hazardous materials shipments for joint inspections.

To assist field units and other agencies in these operations, we will be establishing a Container Inspection Training and Assistance Team (CITAT). One of the primary duties of the CITAT will be assisting and coordinating field units and other agencies

as they develop and conduct these strike force operations. The CITAT will also provide deployable training to field units and other agencies on executing the container inspection program. To promote intermodal coordination and sharing of information, the CITAT will be located with the Transportation Safety Institute (TSI) in Oklahoma City, OK.

#### Summary

I would like to close with a brief example of how the Coast Guard fishing vessel safety program is saving lives.

Emergencies and casualties on fishing vessels develop rapidly. Just such an occurrence happened to the five person crew of the 70 foot wooden commercial fishing vessel Majestic on the morning of September 22, 1992. They were experienced fishermen on a routine trip in the Bering Sea. The weather was somewhat inclement but not out of the ordinary for the end of September in Alaska; 50 degree weather, rain, 35 knot winds, and building 10 foot seas.

What the captain and crew didn't expect was that the Majestic would suddenly sink. Without any warning or indication of danger, the vessel refused to recover from a roll, continued to list, and started to sink. The crew instinctively set about alerting their crewmates, donning their immersion suits, and deploying the safety gear they hoped would save their lives. In no more than seven minutes, the crew was left alone to fend for

themselves in the cold 45 degree water. Luckily, they were prepared. They had conducted drills, rehearsed individual emergency duties, and were familiar with all of their survival equipment. They had prepared themselves to survive by activating their EPIRB, donning their immersion suits, and by maintaining a positive attitude. Remarkably, they were plucked safely from the forbidding waters after six hellish hours.

These five fishermen are living testimonials to the positive impact of the Commercial Fishing Industry Vessel Safety Regulations. Without both the required safety equipment and the drills and training, these people would have perished. The Majestic is not an isolated case. Numerous fishing vessels operating all over the U.S. contribute their survival to the Coast Guard required equipment and drills. In Alaska alone fishing vessel fatalities have been halved from 35 in 1992 to 18 in 1993.

Thank you for your interest and I will be pleased to answer any questions you may have.

STATEMENT OF CHARLES HUETTNER, ACTING ASSOCIATE ADMINISTRATOR FOR AVIATION SAFETY, FEDERAL AVIATION ADMINISTRATION, BEFORE THE HOUSE COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION, SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT, CONCERNING MULTI-MODAL SAFETY ISSUES. MARCH 2, 1994.

Mr. Chairman and Members of the Subcommittee:

I am Charles Huettner, FAA's Acting Associate Administrator for Aviation Safety. I appreciate this opportunity to appear before you today to discuss the FAA's approach to aviation safety issues. Aviation safety is the agency's most critical responsibility, and one that we take very seriously.

Aviation safety has shown long-term, continuous improvement in all facets. Under any measure, and despite occasional spikes in a given year, the U.S. safety record has shown sustained improvement in all types of operations.

This past year was a particularly good one in terms of safety. The larger air carriers enjoyed their second-best accident record ever, and suffered no passenger fatalities. Commuter airlines also experienced the second lowest accident rate ever recorded, and air taxis their safest year ever. In general aviation, the number of accidents and fatalities was the lowest ever recorded.

Accident data compiled by the National Transportation Safety Board (NTSB) is, of course, an important means of measuring system performance, and it is analyzed carefully by the FAA to tailor our safety programs. But there are a variety of other

tools upon which the FAA relies to monitor system performance on a real-time basis. For example, we monitor carefully the performance of the air traffic control system through a series of reporting programs that provide data on near mid-air collisions, pilot deviations, runway incursions and controller operational errors. Each incident is investigated and corrective action, as appropriate, is taken to reduce the possibility of further incidents. These incidents have shown a general downward trend over the past several years, reflecting the careful attention focused on these areas.

We also monitor aircraft system performance and reliability through reporting programs that capture safety data on incidents such as engine outages. Information generated through programs such as these enables us to identify developing trends and to take prompt corrective action, usually in the form of airworthiness directives, to correct identified problems.

We also have in place an anonymous incident reporting system, called the Aviation Safety Reporting System, which is operated for us by NASA. Anyone can file a report with NASA on any type of aviation safety issue. NASA provides us with periodic reports on the data it has received, with quick turnaround on any reports considered safety-critical. Although we are unable

to investigate reported incidents because of the anonymity guaranteed by the program, it does provide us an additional source of data that might otherwise go unreported.

Our Aviation Safety Hotline extends this principle of anonymous reporting to the general public. Anyone who identifies an unsafe practice has direct telephone access to the FAA. We follow up every phone call to investigate the accuracy of the information, whether the practice is unsafe, and whether safety regulations have been violated.

Reporting systems such as these give us a comprehensive look at the operation of the system, which is supplemented by surveillance and inspection activities that give us a more detailed picture of the safety performance and compliance of the aviation industry.

Although we have made significant improvements in the past several years in better targeting our safety inspection activities through the establishment of National and regional work programs, we recognize that there are opportunities to better identify areas that need special emphasis and targeting of aviation safety inspectors. The Safety Performance Analysis System, also known as SPAS, is intended to help us achieve this important objective. Using data compiled from a variety of sources, SPAS will give FAA inspectors information on a

carrier's compliance history and identify potential safety problems. That will help us target our inspection resources on the basis of an airline's safety performance rather than its fleet size. SPAS is now being field-tested in nine FAA regional offices. We hope to provide SPAS to the inspectors of larger air carriers and commuters next year, and to all FAA inspectors in 1997.

Integrating human factors considerations across all agency functions is one of the FAA's top safety goals. Human factors is a multidisciplinary field devoted to optimizing human performance and reducing human error. It is the study of people working together, in concert with machines. We are working to better apply human factors concerns throughout the agency--including, for example, in pilot certification and management of the National Airspace System. Improving human performance offers the greatest potential for improving aviation safety in that the vast majority of aviation accidents involve human error.

In order to provide for a better exchange of information on work done in the human factors area, the DOT established a Human Factors Coordinating Committee in 1991 with representatives from all the modal administrations. Research projects on operator fatigue are underway in the modal agencies, and the Committee is currently developing joint

research projects. The fatigue researchers meet annually with the NTSB to discuss responses to Board recommendations involving human factors.

The FAA has conducted extensive research in the human factors area. A good example is our research on crew resource management (CRM). CRM training can help prevent aviation accidents by improving crew performance and coordination. Training includes instruction on team building, developing communications skills among crew members, and dealing with automated systems. In 1990, the FAA developed an Advanced Qualification Program as an optional means of improving crew training. This program, which includes CRM training and is conducted under FAA review and supervision, is a voluntary alternative to the traditional training requirements for individual airline crew members. United Airlines was the first to implement an advanced qualification program, and several other airlines are currently developing their own programs.

We are currently preparing a rulemaking proposal concerning crew training standards that would require crew resource management training for airlines covered by our Part 121 regulations. This proposal is consistent with the NTSB's recent study of 37 aviation accidents in which human error was found to be a causal factor. The Board recommended that FAA require major air carriers to provide their flight crews with

crew resource management training if they are not already covered by an advanced qualification program.

The FAA's proposed rule will also seek comments on whether to apply Part 121 major air carrier pilot training and qualification standards to Part 135 commuter operators. We believe that a sharpened focus on CRM training provides the greatest near-term safety potential, since the aviation safety record shows that the human element is associated with over 70 percent of commuter and airline accidents.

We are also continuing our efforts to improve the equipment available to aircraft operators to improve the safety and efficiency of their operations. We are working aggressively, for example, to make the satellite-based Global Positioning System (GPS) available for civil navigation and airport landing purposes. GPS offers enormous opportunities for enhancing civil aviation safety and efficiency. It enables us to integrate high-precision navigation with air traffic control. It will increase the capacity of our airspace system, and reduce delays and the costs they impose on airlines, passengers, and shippers. Further, it will provide non-precision and, we expect, precision landing capabilities at reduced cost to the government and system users. The

availability of GPS also offers the potential for non-precision and precision landing capabilities at airports that otherwise would not be equipped with conventional landing aids.

To facilitate the introduction of GPS technology, Secretary Peña established a DOT working group, on which the FAA has played a lead role. This group has worked closely and cooperatively with the Department of Defense (DOD) to make the system a reality for civil application.

We are pleased that GPS is now an operational part of the U.S. air traffic control system. FAA has certificated the first two GPS signal receivers for oceanic, domestic en route, terminal, and non-precision approaches. And DOD specifications for initial system operation have been accepted by the FAA for civil aviation purposes. I would add that companies are now developing equipment that would use the same system to aid automobile and truck drivers, and at least one railroad is considering use of GPS.

In the future, aircraft will relay positional signals from their GPS receivers to ground stations, increasing safety and accuracy, and reducing costs of aircraft operation. Airlines will save millions of dollars each year in fuel costs, and general aviation users will have cheaper and better navigation capabilities than before.

In closing, Mr. Chairman, I would like to stress that improving the safety of our Nation's air transportation system is the FAA's highest priority. We are pleased that the aviation safety record continues to improve, but we recognize that there is always more that can be done to improve upon that record. I can assure you that we are aggressively working to do just that.

That completes my prepared statement, Mr. Chairman. I would be pleased to respond to any questions you may have.

STATEMENT OF DENNIS C. JUDYCKI  
ASSOCIATE ADMINISTRATOR FOR SAFETY AND  
SYSTEMS APPLICATIONS  
FEDERAL HIGHWAY ADMINISTRATION  
U.S. DEPARTMENT OF TRANSPORTATION

BEFORE THE  
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION  
SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT  
U.S. HOUSE OF REPRESENTATIVES  
MARCH 2, 1994

**CROSS-MODAL SAFETY ISSUES**

**INTRODUCTION**

Good morning, Mr. Chairman. I am Dennis Judycki, Associate Administrator for Safety and Systems Applications, Federal Highway Administration (FHWA). With me this morning is Mr. Michael Trentacoste, Director of the Office of Program Management Support in our Motor Carrier office. We are both delighted to be here this morning to discuss with you the ways in which the FHWA is working with its Departmental partners to improve transportation safety.

The safety of this Nation's transportation system is of paramount importance to those of us in the Department of Transportation. This concern is reflected in the Department's new Strategic Plan, which was unveiled by Secretary Peña in January. One of the primary goals of the Plan is to provide safe and secure transportation for the American people. Significantly reducing deaths and injuries on our transportation system will provide tangible health and economic benefits for our country, and the FHWA is coordinating strategies to address this objective.

The FHWA is primarily concerned with the safety of the Nation's highways and commercial motor vehicles. In these areas, our agency shares responsibility with the

National Highway Traffic Safety Administration (NHTSA) for the safe and efficient movement of our Nation's people and goods. To this end, the FHWA has focused its safety resources on specific target areas to reduce crashes, fatalities, and serious injuries on our roadways.

### **GOALS AND OBJECTIVES**

Secretary Peña has outlined a four-part action plan to provide a safe and secure transportation system for the Nation. This plan --

- (1) highlights transportation safety as one of the Department's highest strategic goals;
- (2) uses teamwork to address cross-modal issues;
- (3) harnesses the potential of new technology to enhance transportation safety; and
- (4) improves the availability and use of safety-related data and information.

Building upon this action plan, one of the goals of the FHWA's own 1994 National Strategic Plan is to improve surface transportation safety through a coordinated effort to reduce highway fatalities, injuries, property damage, and hazardous materials incidents.

The primary objective of the FHWA's plan is to reduce the national highway fatality rate by an average of five percent per year through 1996. To this end, the FHWA and the NHTSA are assisting States in efforts to develop and implement comprehensive Safety Management Systems, as required by the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). In addition, the FHWA is developing and implementing a joint safety action plan with the NHTSA and the other modal agencies to address roadway, vehicle, and

driver-related safety issues. The FHWA's ongoing partnerships with both public and private sector safety advocates enhance the overall safety efforts of the Department.

#### **HIGHWAY SAFETY IMPROVEMENT FUNDING AND OTHER RESOURCES**

Data show that those highways with the highest design standards have the lowest fatality rates, and the FHWA provides -- in cooperation with our State highway agency partners -- safety leadership for the development and application of standards for the design, construction, maintenance and operation of the Nation's highway system. The FHWA routinely obligates over \$2 billion each year for such safety improvements as clear roadsides and safety hardware.

In 1974, the year in which ear-marked funding for highway safety improvements began, there were 45,196 traffic fatalities on our Nation's roadways -- a fatality rate of 3.5 deaths for every 100 million vehicle miles of travel (VMT). By 1992, despite a 70 percent increase in VMT the number of fatalities had decreased to 39,235 -- a 13 percent decline. More dramatic still was the startling decline in the fatality rate, which fell to just 1.8 per 100 million VMT, a decrease of nearly 50 percent.

Since 1974, as discussed in the FHWA's 1993 Annual Report on the Highway Safety Improvement Program, for every \$1.00 invested in highway safety improvements, a \$2.90 benefit was realized in lives saved, injuries prevented, and property damage reduced.

Funding for highway safety improvements was continued in the ISTEA through a 10 percent safety set aside from Surface Transportation Program funds. The ISTEA provides the States and local agencies greater flexibility and latitude to direct safety resources into areas of greatest need and of specific concern.

Over \$400 million in safety set aside dollars are dedicated specifically to carrying out safety improvement programs to reduce roadway hazards and improve safety at railway-highway grade crossings (discussed more fully in the Federal Railroad Administration's statement). Examples of such projects include: improving traffic signals; installing guardrail and median barriers; installing automatic gates at railway-highway crossings; widening shoulders; improving pavement skid resistance; and placing or upgrading pavement markings. Initiated in 1974, it is estimated that this program has prevented over 29,000 fatalities and 600,000 serious injuries, according to program evaluations.

#### CROSS-MODAL HIGHWAY SAFETY PROGRAMS

Although significant progress has been made, too many deaths and injuries continue to occur on our streets and highways. The resultant health care costs exceed \$14 billion and significantly affect the national economy. The FHWA is committed to achieving further reductions in the number and severity of motor vehicle collisions through a variety of cross-modal safety initiatives. Some examples of these initiatives follow:

- SAFETY MANAGEMENT SYSTEM

The FHWA and the NHTSA are administering the national implementation of the Safety Management System (SMS), one of six management systems required by the ISTEA. The primary purpose of all of the management systems is to improve the efficiency of, and protect the investment in, the Nation's transportation infrastructure. The SMS is also defined as a set of management processes designed to ensure that all opportunities to improve safety are identified, considered, implemented where appropriate, and evaluated. The SMS will

enhance safety effectiveness through coordinated, multi-disciplinary efforts which encompass the three elements of highway safety: the human, the highway and the vehicle.

The SMS requires the establishment of formalized and interactive communication, coordination, collaboration, and cooperation among the organizations responsible for these major safety elements. These organizations include, but are not limited to, enforcement, emergency medical services, emergency response, motor carrier safety, motor vehicle administration, and State highway safety agencies, as well as the public health community.

Several training courses and technology sharing activities are underway and will be provided to State and local agencies during the next three years. State and Regional meetings on the SMS are also being conducted.

- HUMAN FACTORS

Another important cross-modal initiative in which the FHWA is involved is the area of the "human factors" associated with transportation accidents, particularly operator fatigue. The FHWA's primary concern in this area is commercial motor vehicle accidents, particularly those that result from driver fatigue. This is an area that has been the focus of much research, not only by the FHWA, but also other modal administrations. I would like to briefly explain what we are doing in this area and our effort to share our knowledge with the other Departmental agencies.

Over the past five years, the FHWA has directed a major research effort examining the very complex issues of driver fatigue and alertness. The intent of this research is 1) to provide a technically sound basis for evaluating the FHWA's hours-of-service requirements for commercial motor carriers (49 C.F.R. Part 395) and (2) to develop countermeasures for

reducing fatigue and increasing driver alertness. Since 1989, the FHWA has spent approximately \$4.5 million on this effort alone. A final report on this research effort is expected this year. Four other major research efforts are also being conducted in the area of driver fatigue. These include driver fatigue and stress in drivers of longer combination vehicles, driver fitness for duty, sleep apnea (a disorder involving the transient suspension of respiration during sleep), and rest and recovery cycles. In 1992, the FHWA initiated a separate contract with the American Trucking Associations to examine issues related to driver fatigue, including driver rest area needs and standardized vehicle diagnostic devices.

We believe the results of the driver fatigue and alertness studies will yield valuable data to help determine the incidence of driver fatigue in commercial motor vehicle drivers and thus help determine if any changes are needed to the current hours of service regulations. Ultimately, we believe it will improve our ability to initiate remedial action before an accident can occur.

As we proceed with our studies, we are making a concerted effort to share our progress, results, and findings with the other modal administrations. The Department has established a forum for doing just that -- the Human Factors Working Group. The Working Group was established in 1991 by the Department's Research and Development Coordinating Committee with staff support provided by the Department's Volpe National Transportation Systems Center. It provides a forum for all modes to exchange information on critical human factors research activities. As a leader in the Department on driver fatigue research, we participate in this Working Group. Based on information exchanged in the Working Group, several research project managers from the other modal administrations are currently

using the FHWA's testing methods to identify potential similarities in operator performance in the different modes of transportation (rail, air, maritime).

- SECTION 402 HIGHWAY SAFETY PROGRAM

Established by the Highway Safety Act of 1966, the 402 program is essentially a grant-in-aid program which involves extensive partnering with the States in developing and implementing State and local highway safety programs. Through coordinated management of the Section 402 Highway Safety Program, in cooperation with the NHTSA, program dollars are channeled into areas which will have the most effective safety benefit.

- ADVANCED TECHNOLOGY -- IVHS

The Department of Transportation is committed to advancing the application of technology to today's transportation problems. To this end, the FHWA, in cooperation with the NHTSA and the FTA, is taking the lead for the Department in developing Intelligent Vehicle-Highway Systems (IVHS) and promoting their deployment. The IVHS Program has great potential for increasing the safety of travel on America's highways. This potential is reflected in DOT's IVHS Strategic Plan submitted to Congress by the Department in December 1992, which contained two specific safety-related objectives for IVHS. These objectives are to develop IVHS in order to (1) reduce significantly the number of annual fatalities and injuries due to accidents, and (2) improve the safety of private vehicles, transit fleets, commercial vehicles, and hazardous material movements.

A new Joint IVHS Program Office is being created to provide policy direction and to facilitate coordination among the FHWA, the Federal Transit Administration (FTA), the NHTSA, and other DOT offices. This new office, located within the FHWA, will serve as

the Department's Executive Agent for overall management and oversight of the IVHS program. To give this new office the full power of the Department, policy direction and coordination will come directly from the Secretary and the highest levels of all modes of transportation.

As a follow-on to the DOT's Strategic Plan, the Department is in the process of completing its National Program Plan for IVHS. This document explains how we expect to achieve these safety objectives for IVHS, and discusses 27 distinct services that will potentially be offered to the users of IVHS, as well as current and planned future activities that will develop these IVHS User Services to point of deployment. These User Services include: incident management; automated roadside safety inspection; on-board safety monitoring; emergency notification and personal security; public travel security; intersection collision avoidance; and vision enhancement for crash avoidance. Activities are currently underway with our partners in the private and public sectors to support the development of these IVHS User Services.

We anticipate that when IVHS technology becomes widely available, we will see a marked improvement in the safety of our Nation's roads and highways. We are aggressively promoting the adoption of IVHS products and services, such as incident management and collision avoidance systems, may significantly improve safety on our Nation's highways and public transportation systems.

- **OUTREACH PROGRAMS**

The FHWA is actively involved in developing public information and education campaigns targeted to the roadway user. A good example of our efforts in this area is the

"travelling trailer," which was developed in partnership with the business community, the NHTSA, and the North Carolina Governor's Highway Safety Representative. This one-of-a-kind trailer is a high tech safety exposition, featuring robotic figures (including a likeness of auto racing legend Richard Petty) that articulate messages on compliance with traffic control devices, bicycle safety, and work zone safety. The FHWA robotic characters "Ed the Engineer," "Red the Traffic Signal," and "Stephanie the Stop Sign" have been featured at State and local fairs as well as on the race car circuit.

Furthermore, in collaboration with the NHTSA and local enforcement agencies, the FHWA is piloting a campaign on compliance with traffic control devices in Charleston, South Carolina, aimed specifically at drivers involved in running red lights. In addition, the FHWA has been invited to join with private sector safety partners in promoting alcohol awareness programs (3 D Week Coalition), in sponsoring the Nation's largest highway safety conference (Lifesavers), and in promoting pedestrian safety initiatives (AAA and National Safety Council).

Another example is our "Share the Road" campaign. For the past two years, the FHWA has jointly funded with the NHTSA the development of a public service campaign designed to educate the motoring public in how to safely share the roads with trucks. The campaign will include television, radio, print, and other creative public outreach strategies.

- **PEDESTRIAN SAFETY PROGRAMS**

The FHWA and the NHTSA have also joined forces to develop, implement, and coordinate a variety of pedestrian safety initiatives. Included among these are:

- evaluating the safety effectiveness of a new signing material known as *fluorescent strong yellow green*, designed to improve people's awareness of pedestrian and bicycle crossing signs;
- the revision and planned distribution of Walk Alert, a community based pedestrian safety "how-to" manual;
- Walking Through the Years, a safety program designed for seniors; and
- Willy Whistle, a children's safety program incorporating a cartoon character.

In addition, nearly 300 *Pedestrian Safety Resource Kits* were distributed to all FHWA and NHTSA field offices, to each Governor's Highway Safety Representative, to each State Transportation Agency's Pedestrian/Bicycle coordinator, and to local community safety programs throughout the country. Monthly, cross-modal "share" meetings are held with representatives from the Office of the Secretary of Transportation, the FHWA, the NHTSA, and the FTA to keep each administration current on new programs, initiatives, or areas of special concern.

- **COMPREHENSIVE TRAFFIC SAFETY PROGRAMS**

In order to maximize safety benefits and leverage agency dollars, the FHWA and the NHTSA have merged two existing programs which revolve around applying comprehensive traffic safety countermeasures to communities and stretches of roadway that have been identified as having high crash histories. This hybrid program, called the Community/Corridor Traffic Safety Program, involves a multi-disciplinary approach to highway safety and includes representatives from engineering, enforcement, education, and emergency medical services.

- HAZARDOUS MATERIALS ROUTING

The FHWA, in coordination with the Research and Special Programs Administration (RSPA), is developing a new regulation for the routing of nonradioactive hazardous materials, as well as administering and enforcing existing regulations for the routing of radioactive materials. This coordination is facilitated by monthly cross-modal meetings, as well as meetings sponsored by the RSPA which involve such outside agencies as the Departments of Defense and Energy and the Nuclear Regulatory Commission (NRC). The FHWA, the RSPA, and the Federal Railroad Administration are also working with the NRC, the Departments of the Interior, Energy, and Defense, and several other agencies on current movement of radioactive materials, the future movement to storage of spent radioactive fuels, and the safe movement of explosives.

- THE FHWA AND THE MOTOR CARRIER SAFETY ASSISTANCE PROGRAM

The FHWA administers the Motor Carrier Safety Assistance Program (MCSAP), which provides grants to States to conduct uniform inspections of commercial motor vehicles and drivers at the roadside and perform carrier reviews to ensure compliance with Federal safety and hazardous materials regulations. In 1991, the ISTEA expanded the MCSAP to include other activities. States now use MCSAP funds to support truck weight enforcement, drug interdiction activities, traffic enforcement, hazardous materials training, and driver's license enforcement.

The ISTEA also requires the States to coordinate their annual grant application and State Enforcement Plan with the Governor's Highway Safety Representative. This encourages intermodal cooperation and review at the field level, so that NHTSA and FHWA

activities are not duplicated. FHWA and NHTSA field staff meet to resolve funding and activities differences prior to the grants being awarded. In the future, we believe these intermodal activities will fit best under the Safety Management System.

Another area where the MCSAP plays a key role is drug and alcohol regulation and enforcement. Intermodal cooperation has been critical to the Department's recent successful promulgation of drug and alcohol rules. These new regulations require motor carrier-based testing programs. These programs must be reviewed by State and Federal enforcement officials for compliance with the regulations. Therefore, the major responsibility for the successful implementation of these rules rests with the MCSAP and Federal field staff.

- COMMERCIAL DRIVER'S LICENSE PROGRAM

One of the major achievements of our motor carrier program is the development and implementation of the Commercial Driver's License (CDL) Program. We believe it is the single most important program yet developed in the area of commercial vehicle safety. The CDL Program, established by the Commercial Motor Vehicle Act of 1986, eliminated multiple State licenses and driving records and required drivers to demonstrate their knowledge and skills in safely driving commercial vehicles. All drivers of vehicles with a gross vehicle weight or gross combination weight rating of 26,001 or more pounds, or vehicles designed to transport 16 or more passengers, including the driver, or those vehicles of any size used in the transportation of hazardous materials which require placarding, must possess a CDL.

The success of the CDL Program is the result of a cooperative effort among the FHWA, the States, the NHTSA, and the American Association of Motor Vehicle

Administrators (AAMVA). These organizations worked together to establish the Commercial Driver's License Information System (CDLIS), which contains information about the license holder. The CDLIS serves as a "pointer" to the complete driver record, which is maintained by the State that issues the license. As States issue CDLs, they electronically notify the system of the driver's name, date of birth, social security number, and other data elements. If the same driver were to apply for a CDL in another State, the required preliminary inquiry to the CDLIS would reveal that the driver already has a CDL.

All States must check with the NHTSA's National Driver Register to determine whether a driver has been disqualified or has had a license to operate any type of vehicle suspended, revoked, or canceled. To make the CDLIS more efficient, the FHWA and the NHTSA worked closely to ensure the compatibility of the National Driver Register and CDLIS. As a result, States now make one query about a driver and receive information from both systems. The FHWA and the NHTSA jointly participate in user workshops to make improvements to the systems. Approximately 6.6 million CDL's have been issued using the information provided by these systems.

- DATA COLLECTION AND ANALYSIS

Efficient collection and analysis of appropriate safety data has always been essential to safety management and will be critical to the development and operation of an effective SMS. The cornerstone of safety information for SMS is traffic records. Meeting SMS requirements will therefore require improvements in traffic records systems.

While the SMS provides a new and comprehensive framework for the use of safety information, both the NHTSA and the FHWA have traditionally stressed the importance of

accurate information for informed safety decisions. Both agencies have stressed the need for accurate information and database linkage. Currently, the NHTSA is sponsoring assessments of existing State traffic records systems and is encouraging States to implement the Critical Automated Data Reporting Elements (CADRE), a list of 18 specific data elements that could provide significant improvements in the uniform collection and analysis of police reported crash data.

The FHWA has directed its focus on common reference systems for highway elements and accident location and the application of new technology to improve collection of roadway data, to improve the data entry process, and to develop improved analysis techniques.

In our efforts to identify high risk motor carriers, State and Federal personnel currently transmit safety performance data on motor carriers to the FHWA through the SAFETYNET system. The information includes carrier safety ratings, accident history, and results of roadside vehicle/driver inspections. The Motor Carrier Management Information System (MCMIS) is a computerized information system containing comprehensive safety performance records on individual interstate motor carriers. The data are supplied by the States and Federal motor carrier safety personnel and the carriers themselves. The records are maintained on a central mainframe computer and are available for use by States, Federal agencies, the motor carrier industry, insurance companies, and others.

Safety performance data available through MCMIS includes a description of the carrier's operations, results of safety and compliance reviews, results of vehicle/driver inspections, and carrier accident involvement. The FHWA uses the following factors to

identify carriers which pose the greatest risk to safety: safety fitness ratings, type of commodity transported, accident history, compliance/enforcement history, and size of operation. These data factors are used to prioritize compliance reviews on high risk carriers.

The FHWA plans to provide electronic access to carrier safety data and driver license information to 100 MCSAP inspection sites by 1996. This will provide immediate access to important safety information directly at the roadside. We believe this will greatly improve our ability to obtain reliable accident prevention data and decrease the number of commercial motor vehicle accidents.

#### REGULATORY ANALYSIS

Mr. Chairman, before closing I would like to address one final issue raised in your Subcommittee's February 2, 1994, letter of invitation. Your letter asked if the FHWA, before issuing regulations (or deciding not to issue a regulation), conducts a risk assessment or cost-benefit analysis. The FHWA does indeed conduct such an analysis before deciding to issue any regulation.

The FHWA's decision-making process is in keeping with Administration policy, as reflected in Executive Order 12866, "Regulatory Planning and Review," issued by President Clinton on September 30, 1993. Section 1 of the Order states that when "deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating." Section 6 of the Order includes a detailed description of the assessments agencies must make before deciding to issue regulations. For example, if a particular regulatory action would be considered "significant" under the terms of the Order, then an agency must assess the costs and benefits of the action

and the costs and benefits of reasonable alternatives to that action (including consideration of a "no action" alternative).

Furthermore, since 1979 the Department has required the modal administrations, before issuing regulations, to conduct detailed analyses of their potential economic consequences. Potential regulations deemed economically "significant" must undergo an analysis that: 1) considers whether a problem exists that would justify issuing a new regulation; 2) considers the economic and other relevant consequences of such a regulation and possible alternative solutions; and 3) contains a detailed explanation of the reasons for choosing one alternative over the others. If the head of the initiating office determines that the expected impact of a proposed regulation is so minimal that the proposal does not warrant a full evaluation, then a statement to that effect, and the basis for it, is included in the proposed regulation.

#### **CONCLUSION**

The FHWA is engaged in numerous efforts to improve the safety of the Nation's surface transportation system. Key to these efforts are the many cooperative ventures that the agency has undertaken with its modal partners. As we work to fulfill Secretary Peña's goal of providing America with the safest and most secure transportation system in the world, we will continue to work with our modal partners to improve those areas where our interests overlap. We at the FHWA are confident that the DOT team, with the help of our partners in State and local government, will be able to provide the Nation with a transportation system worthy of the 21st century.

Thank you, Mr. Chairman. Mr. Trentacoste and I would now be happy to answer any questions you may have.

STATEMENT OF ROSE A. MCMURRAY  
RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION  
DEPARTMENT OF TRANSPORTATION  
BEFORE THE  
SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT  
OF THE  
HOUSE PUBLIC WORKS AND TRANSPORTATION COMMITTEE  
MARCH 2, 1994

Thank you, Mr. Chairman and members of the Subcommittee, for the opportunity to be here today to address the efforts that the Research and Special Programs Administration (RSPA) is taking to improve transportation safety. Although RSPA may not be as well known as many of the modal administrations, our role is becoming more significant in a global economy where transportation is increasingly intermodal, and where our safety and research programs contribute to the competitiveness of our industries worldwide. RSPA is unique in the Department because we have a number of intermodal and multi-modal responsibilities. Although RSPA is a small headquarters organization, we have primary responsibility for hazardous materials safety (by all modes of transportation except bulk vessels), pipeline safety, emergency response, research and technology, and safety and security training.

RSPA's Volpe National Transportation Systems Center in Cambridge, Massachusetts, is the Department's national center of transportation and logistics expertise, and the Department's only multi-modal research facility. One of the Volpe Center's important DOT customers, the Federal Railroad Administration, has testified today about the Center's work. The Volpe Center is funded entirely through a working capital fund by clients who include all elements of DOT and other Federal organizations concerned with transportation issues. RSPA's Transportation Safety Institute in Oklahoma City offers safety and security training to support all modes of transportation.

Our safety, research, and training efforts have been successful because of the strong support of our fellow agencies within the Department, our extensive partnerships with State, local, and Indian tribal governments, and the commitment to safety by industry, environmental and public interest groups, and individual consumers.

#### Transportation Safety Performance

The Nation's safety record in the transportation of hazardous materials continues to be very good. Since 1980, fatalities resulting from releases of hazardous materials transported by

highway, rail, air, and water have remained relatively constant - at an average of 13 annually. More than 500,000 shipments of hazardous materials are in transportation daily. Even one transportation-related death, however, is unacceptable, and we share the Secretary's commitment to improving the Department's safety performance in this area.

The safety record for pipeline transportation is also very good. There are more than 1.7 million miles of pipelines in the United States, delivering natural gas, petroleum, and other hazardous materials to 55 million residential and commercial customers. Serious incidents are rare, but a single incident can have drastic consequences. In the last 10 years, annual pipeline fatalities have ranged from a low of nine in 1990 to a high of 46 in 1989. Fatalities and injuries caused by natural gas explosions continue to occur, but the fluctuation in the data makes it difficult to identify any trends. As you may know, Mr. Chairman, the largest single cause of pipeline accidents is damage from excavation or other construction activity conducted by persons not employed by the pipeline operator. RSPA is taking steps to reduce these accidents through a rule to require pipeline operators to prevent damage to pipelines and participate in "one-call" programs. We expect to issue a final rule later this year. We are also concerned about avoiding environmental damage caused by releases such as last year's Colonial pipeline

spill in Northern Virginia. At Secretary Peña's direction, we initiated a program review to ensure that our pipeline program devotes enough attention to environmental issues.

RSPA's data on training shows that an increasing number of people in all areas of transportation are being trained through our Transportation Safety Institute (TSI) in Oklahoma City. Like the pipeline example I cited earlier, most transportation accidents can be attributed to human factors. Therefore, we believe the better people are trained, the less likely it is that they will be involved in, or cause, accidents. Since 1971, TSI has trained more than 260,000 students, including Federal, State, and local government personnel. One of our sister agencies, the Federal Transit Administration, has testified today about some of TSI's activities.

#### Risk Assessment

RSPA's Office of Pipeline Safety has developed a prototype risk-based program planning system to address highest priorities for safety improvements of natural gas and hazardous liquid pipelines. By focusing program efforts on the solutions to pipeline problems that will yield the best risk management results, we believe we will improve the cost-effectiveness of our entire program. We will determine the relative significance of solutions to identified risks, and direct our resources, and

those of the States and pipeline operators, to those solutions that achieve the greatest reduction in risks to public safety and the environment at the lowest cost. A mathematical model will guide our application of resources. We believe this system will have cross-program application.

I spoke earlier about our difficulty in discerning trends in pipeline incident data, which is fundamental to risk assessment. Program improvements in information and data analysis have been critical to enhancing our capability to improve pipeline safety. To improve data accuracy, the pipeline program is initiating a quality-control process to validate data and establish relationships between related data elements. We have initiated an expert information system, open to all employees, which will incorporate a historical account of regulatory development, provide a consistent set of interpretations to regulations, and provide for analysis of data elements to support streamlined regulatory development.

#### RSPA Leadership in Cross-Modal Issues

I would like now to describe two specific DOT programs in which RSPA has the Department's lead responsibility. In the area of hazardous materials safety, RSPA is assigned the responsibility under the Secretary's Strategic Plan for improving that safety record. RSPA writes and issues the Hazardous Materials

Regulations, and shares inspection and enforcement responsibility with four other DOT agencies -- the Federal Aviation Administration, the Federal Railroad Administration, the Federal Highway Administration, and the Coast Guard. RSPA enforces these regulations through its inspections of hazardous materials container manufacturers, reconditioners, and retesters, as well as persons who offer hazardous materials for transportation by all modes of transportation. The other DOT agencies are responsible for inspection of carriers and shippers and enforcement of the regulations in their respective modes of transportation. This is one of the oldest -- and I would assert the most successful -- cross-modal safety efforts in the Department. We believe that the best way to achieve a safe transportation system is for each modal administration to apply the regulations uniformly, with exceptions only where modal-specific differences are justified. For example, there are certain hazardous materials that are not allowed to be transported by air or water. To ensure the Department is "together" on hazardous materials policies, RSPA chairs monthly meetings with the other four modal administrations, to exchange information on regulatory changes, set enforcement priorities, coordinate legal issues arising from the enforcement program, and discuss innovative approaches to gaining compliance. The result of these meetings has been a clear understanding of roles, more efficient Departmental management, and a better industry and public awareness and understanding of the regulations we issue.

In addition, RSPA led the development of a Unified Shippers' Inspection and Enforcement Data System (UNISHIP). UNISHIP includes data, provided by all the modes, on inspection and enforcement activities related to hazardous materials shippers. UNISHIP data will enable the modes to better target inspections and take prior violations into consideration when assessing penalties.

Another example of intermodal cooperation is our implementation of the Oil Pollution Act. We are working with the Coast Guard, other Federal and State agencies, and industry, to enhance our national capability to respond to oil spills from pipelines. The Coast Guard has helped us develop an approach to reviewing pipeline operator response plans, distinguishing response concerns for inland situations from coastal situations. We are working with the Coast Guard and the Environmental Protection Agency (EPA) to provide support to Area Contingency Planning Committees so that they understand the risks posed by pipelines and can provide risk rankings of areas of environmental importance. In addition, the Coast Guard and EPA are helping us develop a national pipeline mapping program so that we can graphically depict the relationship of pipelines to environmentally-sensitive areas, drinking water intakes and other sites we need to protect.

The second DOT program assigned to RSPA as the lead Secretarial agent is coordinating the Department's response to emergencies that threaten the Nation's transportation system. Catastrophes such as earthquakes, hurricanes, and floods can seriously disrupt the transportation network. As Secretary Peña testified before this Subcommittee last month, the recent Los Angeles earthquake provides a good illustration of the Department's coordinated response to emergencies. RSPA is the Secretary's crisis coordinator, and as such is the focal point in the Department for gathering information and identifying what needs to be accomplished during a crisis. RSPA's direction from the Secretary is to put people first by ensuring that disaster relief efforts restore mobility and commerce to users in an effective and efficient manner.

RSPA's specific role is to coordinate the entire Department's efforts to assist States and local communities in restoring the transportation infrastructure to safe operation and procuring transportation services to move essential relief supplies and personnel. The modal administrations use on-scene engineers and safety inspectors to assist State and local governments in assuring the safety of local transportation structures. To ensure an aggressive emergency response capability, RSPA is working to upgrade our communications and information systems by completing the graphic mapping capability, and linking the two

other operations centers operated by the Coast Guard and the Federal Aviation Administration, in order to harness and capitalize on their expertise in communications systems.

In closing, I want to thank you for the opportunity to address RSPA's contributions to cross-modal safety. I would be pleased to answer any questions you may have.

STATEMENT  
OF  
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TECHNICAL ASSISTANCE AND SAFETY  
FEDERAL TRANSIT ADMINISTRATION  
U.S. DEPARTMENT OF TRANSPORTATION

BEFORE THE  
SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT  
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION  
UNITED STATES HOUSE OF REPRESENTATIVES

MARCH 2, 1994

Mr. Chairman, members of the subcommittee, my name is Lawrence L. Schulman. I am the Associate Administrator for Technical Assistance and Safety, Federal Transit Administration (FTA). Thank you for inviting me here this morning to talk about a topic very important to us, transit safety.

Safety is an issue that transcends departmental modes and deserves the coordinated, consistent and systematic approach that Secretary Peña spoke about in his testimony before you last month. In that connection, Mr. Chairman, my testimony today will cover two discrete topics: first, I will review and discuss FTA safety issues, and, second, I will describe the Department's multimodal safety training efforts, and how they are administered and coordinated by the Department's Transportation Safety Institute in Oklahoma City.

FTA'S ROLE IN SAFETY

First, the FTA's role in transit safety. In that regard, the FTA's legislative authority is basic to any discussion of our safety role, which is quite different from other DOT agencies. You may recall, for example, that the FTA, before it became part of DOT in 1968, was an agency of the Department of Housing and Urban Development. This difference is most significant in the area of safety, which is a critical part of the functions of other DOT agencies. The other modal administrations generally have specific statutory safety mandates that authorize them to regulate the industries over which they have jurisdiction. In contrast, FTA has very limited statutory safety regulatory authority and primarily is a grant-making agency.

FTA STATUTORY SAFETY AUTHORITYGENERAL SAFETY AND SECURITY MANDATES

Let me now discuss FTA's specific statutory safety mandates. Section 22 of the FT Act authorizes the FTA to investigate conditions in local transit operations that the Administrator believes create hazards and to require that actions be taken to correct or eliminate those hazards. We have used this authority infrequently, generally in response to congressional requests that we do so. Our most recent use of this authority was in New York City, and involved a comprehensive safety investigation of the Metropolitan Transportation Authority.

In addition, section 24 of the FT Act specifically authorizes FTA to make capital grants for crime prevention and security. And section 9 of the Act requires that recipients of those formula funds spend no less than one percent of funds received under authority of that section on transit security projects.

#### DRUG AND ALCOHOL TESTING PROGRAMS

The most specific safety authority the agency has been granted is that under the Omnibus Transportation Employee Testing Act of 1991 (Pub. L. 102-143), which requires Departmental agencies, including FTA, to issue rules requiring safety workers to be subject to drug and alcohol testing. Along with other Departmental agencies, on February 15, 1994, we published in the Federal Register our final rules in this regard. Our rules apply to recipients of funds under our section 3, 9, and 18 programs, and cover some 200,000 transit safety workers. The rules require pre-employment, post-accident, reasonable suspicion, random, and return to duty testing for alcohol misuse and prohibited drug use.

#### STATE SAFETY OVERSIGHT PROGRAM

While commuter rail systems funded by FTA are subject to FRA safety jurisdiction, light and heavy mass transit rail systems are not subject to any Federal safety oversight. Congress addressed this issue in the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) by adding section 28 to the FT Act, which requires the FTA to develop a rule requiring a State to establish an agency to provide safety oversight of any

rail mass transit systems in the State not under FRA's jurisdiction. The FTA has issued a Notice of Proposed Rulemaking on this program, and we will be holding a public hearing on the rule on March 8, 1994, in Washington, D.C.

In short, aside from the alcohol and drug testing regulations, Congress has provided the FTA with limited safety authority. The reason is simple: transit safety is fundamentally a local matter. In the early days of transit, the responsibility and accountability for safety transit was vested in State public utility commissions, in local transit commissions, and in the general purpose agencies of government that issued franchises for and oversaw the private operation of transit systems on city streets. With the advent of public transit authorities, that local safety focus continued. The FTA primarily is involved in providing financial assistance to transit systems around the country, not in regulating their safety or operation.

#### TRANSIT SAFETY TECHNICAL ASSISTANCE PROGRAM

Within this context, we have had a transit safety technical assistance program in effect for many years focusing on training and informational activities. A key element of the program is the principle of system safety and system security. System safety is a methodology by which a transit agency can take a proactive approach to minimizing hazards and responding to incidents. We encourage our grantees to develop a System Safety and Security Program Plan, which describes the persons, the resources, and the process for preventing, responding to, and investigating accidents and incidents. It assigns roles and responsibilities.

The FTA safety program has focused most of its resources on training local transit officials in professional safety and security practices essential to effective local safety programs. The FTA training program at the Transportation Safety Institute (TSI) has included system safety, accident investigation, and bus operator safety. Recent additions to the curriculum include alternative fuels safety, system security, emergency preparedness, accident prevention, substance abuse management and industrial safety. The TSI transit safety training curriculum currently includes over a dozen different courses. FTA has trained over 30,000 transit professionals since it began training at TSI in 1976.

FTA has supplemented these technical assistance activities with industry guidelines on a variety of safety topics, including emergency preparedness and materials flammability. These guidelines outline recommended practices in documents that we make available to our grantees.

Mr. Chairman, other safety and security program areas that we have emphasized include safety data reporting, emergency management, and intermodal activities.

#### REPORTING DATA

Early on, FTA established a partnership with rail transit agencies for reporting safety data on accidents, deaths, and injuries. The so-called SIRAS program augmented a limited set of safety statistics that were included in FTA's broader section 15 reporting system for transit financial and operating data. In 1991, the section 15 reporting program was expanded to replace

the voluntary SIRAS program and now includes mandatory safety data. In addition, section 15 is being expanded to include employee data and security and crime statistics. National safety statistics in all modes of transit provide the Department and the public with information on transit safety that is used for planning and identifying safety hazards.

#### EMERGENCY PREPAREDNESS

Emergency preparedness is an ongoing concern for transit managers and local fire, police, and emergency medical units that respond to transit emergencies. FTA currently is developing an emergency management training course that will prepare these personnel to plan, respond, and recover from minor accidents or major disasters. FTA has written guidelines for both bus and rail emergency preparedness and for response to fires, especially in rail tunnels. FTA has developed recommended fire safety guidelines for material selection for buses and railcars and will continue to integrate the latest developments in material technology and testing. In response to the recent earthquake in Los Angeles, for example, the safety office assisted FRA in providing the approvals necessary to expeditiously lease 25 bi-level commuter cars for use in expanding the Los Angeles METROLINK service to meet the emergency.

#### MULTIMODAL ACTIVITIES

FTA is cooperating with FHWA and FRA in the area of grade crossing safety. It shares an interest with FRA in the safety of steel wheel and maglev rail safety. It works with NHTSA and FHWA's Office of Motor Carrier Safety in road vehicle safety matters and has taken the lead in matters involving materials flammability and toxicity. Safety officials throughout DOT recognize FTA expertise in the safe handling and use of alternative fuels.

SAFETY AND SECURITY PROGRAM PRIORITIES

Mr. Chairman, let me conclude this part of my testimony by highlighting the safety and security areas we will be emphasizing:

Transit Security: FTA has an ongoing security program that includes training in system security. In 1992, FTA conducted a workshop which examined the relationship between transit security and the environment of crime, gangs, drugs, and vagrancy within the community in which the transit system operates. At the direction of the Administrator, an expanded FY 1994 Security Program is in preparation.

State Safety Oversight: During 1994, FTA will complete a major rulemaking, as discussed earlier, that will mandate state oversight of rail fixed guideway systems. This rule will promote a new safety partnership between the FTA and state safety oversight agencies, will improve safety and security data collection, and will promote increased professionalism for safety officials at both state oversight and local operating levels.

Substance Abuse: As noted earlier, FTA has recently issued rules requiring drug and alcohol testing programs to be implemented at transit agencies that receive FTA financial assistance. Both new rules will be supported by outreach and technical support to assist transit industry implementation of these regulations.

Performance Statistics: Within the last two years, FTA has upgraded the safety reporting element of the Section 15 Reporting System, and has inaugurated an annual Transit Safety Statistics Report (SAMIS). FTA is further expanding the Section 15 reporting system to include data on security performance and employee safety.

Grade Crossing Safety: FTA is working with FRA and FHWA in developing a major multimodal program to promote safety at grade crossings for light rail and commuter rail. Through recent funds provided by the three agencies, LACMYA has demonstrated an active grade crossing automatic security enforcement system that is reducing the number of rail crossing violations.

Alternative Fuels: Alternative fuels require special handling to assure their safe use. In light of congressional mandates on the use of such fuels, FTA will monitor the introduction of these fuels and develop appropriate training and technical assistance materials. A training course in the safe handling of alternative fuels has been underway at TSI since early 1993 and is on-going. As a result of a technical assessment performed at a number of transit authorities, the FTA issued a bulletin to the industry on approaches to improving safety.

That concludes my testimony on FTA issues.

TRANSPORTATION SAFETY INSTITUTE

Mr. Chairman, on behalf of my colleagues at DOT, let me now discuss the Department's Transportation Safety Institute. This institute, owned by DOT and administered through the Research and Special Programs Administration (RSPA), provides safety and security training for a number of DOT administrations and other Federal departments. I have been asked to speak for all of them.

TSI is located at the Federal Aviation Administration's (FAA) Mike Monroney Aeronautical Center in Oklahoma City, Oklahoma. The Institute was established in 1971 to provide centralized training for all modes of transportation in accident and incident investigation, regulatory compliance, and safety management.

Additionally, the Institute was chartered to conduct studies of operational problems relating to the full range of transportation safety and security matters affecting one or more transportation modes; summarize current practices relating to transportation safety and security; and experiment with accident investigation procedures and recommend improved procedures.

The Institute provides consulting services to all Federal agencies in matters of transportation safety and security. Additionally, the Institute is a major DOT outreach resource that would provide training to personnel of state and local government and industrial organizations.

TSI is funded and staffed with resources provided from sponsoring Federal agencies through reimbursable agreements. Sponsor costs are reduced by tuition and user fees charged to non-sponsor participants. Although recovery of cost through fees and tuitions is limited and only permitted under specific legislative authority, the Institute currently recovers about 10 percent of its total operating cost. Since its establishment in 1971, the Institute has trained over 260,000 students in transportation safety and security topics. Additionally, hundreds of technical assistance and evaluation tasks have been provided to numerous clients.

TSI currently has 25 sponsors, offers over 125 courses, and is carrying an annual student load of over 27,000. Seventeen of the sponsors are DOT agencies and offices, with the rest coming from the Department of Defense, Department of Energy, General Services Administration, and the National Safety Council. Through its multiple training activities, the Department encourages and uses cross modal expertise and resources. A few examples of this joint DOT approach:

- The FAA's training academy and the Civil Aeromedical Institute are both located at the Aeronautical Center thereby facilitating intermodal exchange, improving standardized methods and reducing duplication of effort.
- Through collocation of the FHWA Howard Motor Carrier Academy with TSI, course material and resources including instructors, expertise and equipment are shared with RSPA in providing hazardous materials training to over 8,000 highway, enforcement, and motor carrier personnel annually. In addition, NHTSA assists FHWA through the joint use of high tech equipment, photo and instructor development training, and trainers on loan from each other's programs. Both modes share common objectives - enforcement, regulation and investigation.
- TSI provides the FAA Flight Standards Service Regulatory Support Division with training support by conducting worldwide seminars. This involves a system to recover costs for their standardization seminars. Since the inception of the project in 1993, TSI has enrolled approximately 4,000 seminar participants. This support agreement is possible because of the existing relationship and collocation of the FAA and Aircraft Accident Investigation program at TSI.

- ♦ TSI provides technical training that is attended by DOD personnel in the area of transportation of hazardous materials. Approximately 1000 DOD personnel were trained in FY 1993 and an equal or greater number are projected in FY 1994. In 1993 TSI developed a pipeline safety training program specifically for DOD. The evolution of this course was due to RSPA's Office of Pipeline Safety Program and expertise at TSI.
- ♦ TSI is working with FTA, RSPA, and FAA to deliver various OSHA/DOT related training programs. These include, for example, bloodborne pathogens training for investigators, industrial safety training, and asbestos training. These training blocks are all transferable to other modes.
- ♦ The Interagency Committee for Aviation Policy (ICAP) was established by GSA to provide a mechanism for the development of policy guidance and standards covering government civilian aircraft. By agreement among FAA, TSI, and GSA, aviation training, program management, support, and technical assistance required of GSA by OMB will be provided by TSI. This initiative is possible because of the collocation at TSI of the FAA Aircraft Accident Investigation program, which provides the nucleus of the ICAP effort.
- ♦ The USCG is in the process of locating its Hazardous Materials Container Inspection Training and Assistance Team at TSI. This is, in large part, because of the hazardous materials and other safety, health, and environmental expertise and resources available through other modal programs at TSI.

- In all hazardous materials training activities, TSI provides uniformity and consistency in the application of transportation safety regulations to industry and the enforcement community.
- For the future, DOT intends to continue to use TSI as its primary sources of safety and security training. The synergism developed on training issues is fostered by the intermodal environment at TSI - to the benefit of all of DOT.

On a continuing level, TSI will expand its development and use of remote training techniques. TSI has practiced delivery of training at or near the clients work place for years. Currently, TSI conducts over 85 percent of its training at on-site locations throughout the country. This practice has extended the return on training dollars by eliminating the expense of student travel which is now at about twice the cost of delivering the training. TSI costs for FY-93 were slightly less than \$10 per student-hour trained.

TSI is developing more advanced training delivery methods and systems; for example:

- Nationwide satellite delivery of training, including establishment of an agreement with the U.S. Army Environmental Center for use of the Army Satellite System, and an agreement with U. S. Postal Service Training Center for use of their satellite facilities.
- Continue a recent partnership with INET and AT&T which applies artificial intelligence to interactive multi-media, self-train systems, with nationwide delivery and on-demand access.



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- Developing a hazardous material computer-based training program in a joint effort with Williams Communication.
- Joint venture with the Department of Energy and the National Safety Council to deliver a national train-the-trainer program in hazardous materials.

As it has done since its inception, TSI will continue to provide training on high priority safety issues. TSI's role with industry organizations should remain constant as that of a bridge between inception of a new program or processes and the mature state when the private sector fills the requirement.

Mr. Chairman, that completes my statement. I would be pleased to answer any questions you may have.





